APPENDIX 1

ENVIRONMENTAL ASSESSMENT

FOR IMPLEMENTATION OF AN INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN FORT WAINWRIGHT, AK

DEPARTMENT OF THE ARMY
UNITED STATES ARMY ALASKA (USARAK)

ENVIRONMENTAL ASSESSMENT

FOR IMPLEMENTATION OF AN
INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN
FORT WAINWRIGHT

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ENVIRONMENTAL ASSESSMENT

INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

U.S. ARMY ALASKA

VOLUME 3 - FORT WAINWRIGHT

1.0 PURPOSE OF AND NEED FOR ACTION

1.1 Need for Action

U.S. Army Alaska is committed to the stewardship responsibility it has for its training lands. These lands are critical to fulfilling the Army's military mission and they are important to the environmental health of Alaska. The Integrated Natural Resources Management Plan focuses on sustaining the natural resources of Fort Wainwright's training lands for use by future generations of soldiers, Alaskans, and Americans.

The Integrated Natural Resources Management Plan is U.S. Army Alaska's plan of action for the care and wise use of lands entrusted to them. The plan covers a five-year period, but the philosophy behind it spans a much longer period of time. By implementing the plan, U.S. Army Alaska will conserve Fort Wainwright's biological diversity and make sound decisions regarding the use of renewable natural resources to support both the military mission and the needs of the region.

1.2 Proposed Action

U.S. Army Alaska proposes to fully implement its Integrated Natural Resources Management Plan 1998-2002, hereafter referred to as the INRMP or the Plan, at Fort Wainwright, Alaska.

The purpose of this study is to identify and evaluate environmental consequences of implementing the proposed plan, in accordance with the National Environmental Policy Act (NEPA), the Council on Environmental Quality Implementing Regulations, and Army Regulation (AR) 200-2, *Environmental Effects of Army Actions*.

AR 200-2 is the regulation the Army uses to establish policy, procedures, and responsibilities for assessing environmental effects of Army actions. AR 200-2 specifically states that development of a natural resource management plan requires preparation of an Environmental Assessment.

1.3 Interagency and Public Coordination

The analysis process involved the review of installation natural resources-related data collected by USARAK, other governmental agencies, and private organizations. The process involved interviews with USARAK personnel involved with natural resources management, military training planning, and installation maintenance.

The process also involved interviews with outside agency personnel (state and federal) who have responsibilities, interests, and/or expertise regarding natural resources management on Fort Wainwright. The Bureau of Land Management, U.S. Fish and Wildlife Service, and Alaska Department of Fish and Game are signatory partners in implementation of the INRMP. Chapter 7.0 lists all agencies contacted.

A public meeting was held on June 25, 1996, to explain the INRMP planning process as well as invite public comment. A tourist from Florida and a consultant were the only attendees in spite of publicity for about a week in the Fairbanks newspaper. No comments on either the Fort Wainwright natural resources program or proposed contents for the INRMP were offered.

1.4 Decision to be Made

USARAK must implement an Integrated Natural Resource Management Plan at Fort Wainwright to manage natural resources, support the military mission, mitigate environmental effects of the overall military mission, and comply with various environmental laws. Full implementation of the 1998-2002 INRMP will ensure the continued use of Fort Wainwright's natural resources for military training and outdoor recreational uses.

Implementing the Fort Wainwright INRMP would result in no significant detrimental impacts to existing environmental systems. There would be beneficial consequences to this plan, such as reducing impacts to soil, water, and biological resources, thereby avoiding violations of federal and state laws, including the Sikes Act, Clean Water Act, and NEPA. This implementation would allow the Army to manage its natural resources at Fort Wainwright in a proactive manner to meet current and future conservation needs.

Implementing the plan would not constitute a major federal action significantly affecting the quality of the environment. A Finding of No Significant Impact (Appendix A) should be published.

1.5 Regulatory Requirements

This Environmental Assessment was prepared in accordance with the National Environmental Policy Act (NEPA), the Council on Environmental Quality Implementing Regulations, and Army Regulation (AR) 200-2, *Environmental Effects of Army Actions*. Federal and state laws and regulations which govern implementation of the proposed action are listed in Appendix 20 of the Fort Wainwright INRMP.

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 Military Mission

The primary military mission of Fort Wainwright and U.S. Army Alaska following the Cold War,is peacetime deployment to support U.S. interests worldwide, the defense of Alaska, and coordination of Army National Guard and Reserve activities in the state. Most USARAK combat forces are stationed at Fort Wainwright, with Fort Richardson as the primary support base (Anonymous, 1995a).

During 1994, 3,976 active duty soldiers were stationed on Fort Wainwright. About 7,900 family members are part of the Fort Wainwright community as are 1,802 civilian employees.

Effects of past and present military activities on natural resources are discussed in the INRMP. It is difficult to quantify effects of future military missions on natural resources at Fort Wainwright due to the uncertainty involved with military training in Alaska. If the mission remains unchanged, mission impacts on natural resources will remain similar to those today.

Changes in facilities that would affect natural resources will be determined by changes in the military mission. Future mission changes could be more destructive to natural resources than the light infantry training of today. There are no plans for such mission changes at this time. If Fort Wainwright were to be tasked with either mechanized or attack helicopter missions, additional ranges will be needed. Such new missions have not been identified.

The draft Range and Training Land Program Development Plan has identified two ranges needed at Fort Wainwright to support the current mission and fulfill training requirements. A Multi-Purpose Range Complex with the appropriate designation is needed to perform CALFEX, and a MOUT CTF (Military Operations in Urban Terrain) is needed to replace the existing facility which was not built to standard. Construction of a Platoon Battle Course is planned, but it is unlikely the course will be funded in the next five years.

2.2 Alternatives

2.2.1 Fully Implement INRMP Alternative

Under this alternative, USARAK proposes to fully implement the INRMP as mitigation for environmental effects of the military mission. The INRMP presents information on the management of natural resources on Fort Wainwright. The plan describes the setting, defines land management units, and how these units will be managed to sustain ecological functions, protect sensitive and other nongame species, provide sustained military training, and provide outdoor recreation uses. The INRMP includes full implementation of the ITAM program. Major emphasis will be placed on proactive management to reduce the environmental impacts due to Fort Wainwright's military mission.

The INRMP describes and implements an integrated approach to managing natural resources on Fort Wainwright for the period of 1998 through 2002. The INRMP identifies general goals and specific objectives regarding the management of Fort Wainwright's natural resources and policies to accomplish these goals.

The INRMP includes plans for inventory and monitoring of flora, fauna, recreational use, and water quality, and implementation of a geographic information system and data storage/analysis capabilities. Prevention of damage and protection programs include minimizing damage from military activities, preventing and suppressing wildfires, and protecting wetlands, areas of special significance, and cultural resources

Direct management of natural resources include forest ecosystem management and wildlife habitat management (wildlife clearings, waterfowl and other species nesting structures, prescribed burning, and right-of-way construction/maintenance practices). Game harvest management strategies are described. Management specifically for predators and other nongame species is identified. Fish harvest and stocking programs are described. Management practices specific to the cantonment area are identified, emphasizing landscape management. Erosion control programs are described. Wetland protection and water quality protection programs are identified. Pest management programs are outlined, emphasizing natural resources implications.

The Integrated Training Area Management (ITAM) program includes a Land Condition-Trend Analysis component to survey and monitor the condition of the land and its vegetation, an Environmental Awareness component to instill a conservation ethic in military personnel and others using Fort Wainwright, use of a Geographic Information System to make land use decisions using computer generated spatial data, a Land Rehabilitation and Maintenance component to repair damaged land, reduce erosion, and minimize future damage, and a Training Requirements Integration component to integrate training with the capacity of the land to support military use. All components will be operational during 1998-2002.

External assistance for natural resources programs is identified and prioritized. Natural resources-oriented law enforcement issues (particularly airboat operation and trespass structures) and operations are described. Conservation education and other awareness programs are identified. Provisions for range access are identified, including liberal public access. Outdoor recreation programs, including hunting, fishing, off-road vehicle operation, skiing, picnicking, and the Watchable Wildlife program, are described.

The INRMP provides means to protect cultural resources during implementation of the natural resources program. Federal laws, executive orders, Department of Defense directives, and Department of the Army regulations potentially pertinent to natural resources management on Fort Wainwright are identified. Ongoing biopolitical or unresolved issues are identified.

USARAK realizes that some aspects of the INRMP are less specific than others. USARAK has committed in the INRMP to develop more specific action plans during the next five years:

- Habitat Management Activity Plan
- Wildlife Inventory and Monitoring Action Plan
- Wetland Management Action Plan
- Watchable Wildlife Plan
- Forest Management Plan
- Special Interest Areas Conservation Plan
- Outdoor Recreation Management Plan
- ITAM Activity Plan
- Landscaping Plan
- Fire Management Plan
- Erosion Control Plan
- Cultural Resources Management Plan
- Historic Preservation Plan
- Integrated Pest Management Plan

The INRMP includes programs, projects, or actions which are listed in three priority categories (high priority, important, and lesser important projects/programs). Organization, personnel, personnel training, funding, and command support needed to implement this INRMP are discussed.

2.2.2 Partial Implementation Alternative

This alternative would implement portions of the INRMP. There is a wide range of options involved with this alternative, ranging from implementation of some features of each major program to implementation of some major programs but not others. Such actions would emphasize reacting to identified problems and noncompliance as opposed to the proactive approach of implementing the entire INRMP.

2.2.3 Other Management Options Alternative

Virtually every major natural resources program at Fort Wainwright (forestry, fish and wildlife, Integrated Training Area Management, pest management, wetlands, cantonment management, etc.) has many options different from ones selected for the INRMP. For example, there are many different strategies with regard to moose, black bear, and wolf management, just as there are many different options for managing fisheries, and a variety of forest management options. Many of these interact with each other. For example, changing the forest management program would impact moose management and the ecosystem as a whole.

Management options within this alternative create literally thousands of possible combinations, each of which could be a proposed alternative. Various laws, compliance documents, Army regulations, etc., prohibit the implementation of many of these possibilities. For example, using management to attract birds (especially geese) to aircraft flight patterns is not a viable option, due to aircraft-bird strike potentials. Major timber harvest is also not a viable option due to limited markets. Moose habitat improvements provides for many choices. The same would be true of changing the monitoring program for land condition trends based on use.

2.2.4 No Action Alternative

The no action alternative would not implement an INRMP for Fort Wainwright. A wide variety of laws and executive orders on wildlife, water quality, federal land management, outdoor recreation, wetlands, etc., as well as Department of Defense and Department of the Army policies require natural resources management and implementation of an INRMP.

2.3 Identification of the Preferred Alternative

The Army's preferred alternative is to fully implement the Integrated Natural Resources Management Plan for 1998-2002 on Fort Wainwright.

3.0 AFFECTED ENVIRONMENT

3.1 Setting

The setting of the proposed activity is fully described in the INRMP. Fort Wainwright is located in central Alaska, north of the Alaska Range in the Tanana Valley Basin. The installation consists of the Main Post and two large training areas.

The Main Post, which is two miles east of Fairbanks on the Chena and Tanana rivers, has a cantonment area, a small arms range complex, and a close-in range complex. The Tanana Flats Training Area (TFTA) is across the Tanana River from the Main Post. TFTA occupies most of the land between the Wood and

Tanana rivers, stretching 32 miles south of the Main Post (Johnston, 1988). The Yukon Training Area (YTA) is 16 miles east-southeast of Fairbanks, adjacent to Eielson Air Force Base. YTA is roughly rectangular in shape, stretching 28 miles east-to-west and 17.5 miles north-to-south. YTA encompasses much of the land between the Chena and Salcha rivers, northeast of the Richardson Highway (BLM and U.S. Army, 1994). Fort Wainwright comprises 915,098 acres.

3.1.1 Satellite Installations

Fort Wainwright is a satellite installation of Fort Richardson, headquarters of U.S. Army Alaska (USARAK). Most USARAK combat forces are stationed at Fort Wainwright. The Fort Wainwright natural resources program is under the direction of USARAK Natural Resources program, which is headquartered at Fort Richardson.

Ongoing Base Realignment and Closure (BRAC) actions have resulted in Fort Greely becoming a satellite of Fort Wainwright for natural resources management. USARAK personnel at Fort Wainwright directly administer much of the activity at Fort Greely, including natural resources management. The realignment of Fort Greely will not significantly affect Fort Wainwright training since only the cantonment area is affected at Fort Greely. Fort Greely will have its own INRMP.

3.1.2 Neighbors

Fort Wainwright is within the Fairbanks North Star Borough, which is lightly populated with several scattered developments. The city of Fairbanks is on the western boundary of Fort Wainwright. It has a population of 35,000, making it the largest city in the Borough and the second largest city in the state. The main cantonment area of Fort Wainwright lies within Fairbanks city limits. Residential developments have grown eastward, abutting the installation boundary along the North Post, the main cantonment area, and the west side of the Alaska Range Complex.

Both TFTA and YTA are relatively isolated and reasonably protected from boundary encroachment, except for remote homesteads. Other developed areas include Happy, Dome, and Martin to the west; Olnes, Fox, and Chatanika to the north; and North Pole and Eielson Air Force Base (AFB) to the east and south. Fort Greely is 70 miles to the southeast. The area is transected by the George Parks Highway, Steese Highway, Richardson Highway, Alaska Railroad, and the TransAlaska Pipeline (Nakata Planning Group, 1987).

3.2 Climate

Fort Wainwright has the northern continental climate of the Alaskan interior, which is characterized by short, moderate summers; long, cold winters; and little precipitation or humidity. Weather is influenced by mountain ranges on three sides, which form an effective barrier to the flow of warm, moist, maritime air during most of the year. Surrounding uplands also cause settling of cold, Arctic air into Tanana Valley lowlands.

Average monthly temperatures in Fairbanks range from -11.5º F in January to 61.5º F in July, with an average annual temperature of 26.3º F. The record low temperature is -66º F and the record high is 98º F. The average frost-free period is 95-100 days.

Prevailing winds are from the southwest in June and July, and from the north and northeast in winter. Average wind velocity is 5.3 miles per hour (mph). The greatest average wind speed is in spring, with a high of 40 mph recorded in Fairbanks. Winds are 5 mph or less 60% of the time. Thunderstorms are infrequent, occurring only during late spring and early summer.

Average annual precipitation is 10.4 inches, most of which falls as rain during summer and early fall. Average monthly precipitation ranges from a low of 0.29 inches in April to a high of 1.86 inches in July.

Average annual snowfall is 67 inches, with a record high of 168 inches during the winter of 1970-71. Average annual relative humidity is 55%, with lowest levels during spring and early summer (38% during mid-afternoon in May). Heavy fog is relatively common during December and January, with four or five foggy days each month. Ice fog can be expected anytime temperatures drop below -30º F, but is ordinarily restricted to areas near human settlements where moisture is exhausted by burning fuels (Bonito, 1980).

3.3 Geology

Central Alaska has not been glaciated, but during glacial advances, the area was surrounded by glaciers. Climatic fluctuations during the Quaternary Period caused glacial expansion and recession (Racine and Walters, 1991). Rivers flowing from glaciers deposited several hundred feet of silt, sand, and gravel in the Tanana and Yukon valleys. Most of the area is covered by a layer of loess ranging from several inches to more than 128 feet thick. Gravel deposits along the Tanana River are up to 154 feet thick and are a significant source of groundwater (Nakata Planning Group, 1987).

Bedrock of the Yukon-Tanana Uplands, including most of the YTA, is characterized by a complex assemblage of Precambrian and Paleozoic-age metamorphic rocks of the Yukon-Tanana crystalline complex (formerly known as the Birch Creek schist). These rocks were later intruded by Cretaceous and Tertiary-age igneous rocks, resulting in a few exposed areas of granite and quartz diorite. A silty micaceous loess, derived from outwash plains south of the Tanana River, was deposited over most of the area during the Pleistocene and Holocene. Some areas are covered by Quaternary deposits, with the most recent deposits occurring along stream valleys in the form of well-stratified gravel, sand, and silt (BLM and U.S. Army, 1994).

Even though seismic activity in Alaska exceeds that of any other state, few shocks have caused severe damage due to the absence of large populations centers. Fort Wainwright lies in a 200-mile-wide seismic zone that extends from Fairbanks southward through the Kenai Peninsula. Since the 1960s several minor seismic events have occurred east of the main cantonment area and along the western boundary of the Tanana Flats. There is no record of damage sustained from any of these events (Nakata Planning Group, 1987).

3.4 Petroleum and Minerals

Petroleum and mineral rights management on YTA and TFTA of Fort Wainwright is the responsibility of the Bureau of Land Management (BLM). The Yukon Training Area has a low potential for oil or gas deposits, and no potential for coal and oil shale. YTA has no potential for concentrations of phosphate, sodium, potassium, or gilsonite, and moderate potential for geothermal resources (BLM and U.S. Army, 1994).

There has never been significant mining activity on Fort Wainwright, and the area has been closed to mineral exploration for more than 20 years. Placer mining has occurred south and east of YTA, and portions of YTA have a moderate to high potential for gold and tin deposits (CEMML, 1998). Historic placer mines are reported on Beaver Creek and Pine Creek. Records of the state of Alaska show a claim staked on a tributary of French Creek in the southwestern part of YTA. No valid claims exist now.

YMA Resources Management Plan (BLM and U.S. Army, 1994) prohibits mining in drop zones and landing fields, and within one mile of all existing roads and major trails, to maintain safe military operations and training. Mineral material sites are an exception to the one-mile off-limits designation. The military may use sand and gravel for its own purposes. Large amounts of sand and gravel are available just west of YTA, and there is high potential for localized sand and gravel in some of the stream valleys within the YTA (BLM and U.S. Army, 1994).

Measures to safeguard resource values outlined in 43 CFR 3100, 43 CFR 3600, and 43 CFR 3809, will apply to mineral development on YTA. Under terms of the Military Lands Withdrawal Act of 1986, should YTA be opened to mineral location, mineral patents would convey title to locatable minerals only. These patents would also carry the right to use as much of the surface as necessary for mining under guidelines established by the Secretary of the Interior by regulation (BLM and U.S. Army, 1994).

YTA is exempt from provisions of the Mining Law of 1872, the Mineral Leasing Act of 1920 as amended, the Mineral Leasing Act for Acquired Lands of 1947, and the Geothermal Steam Act of 1970. The withdrawal is closed to all forms of mineral material disposal, both sale and free use, other than that which supports military activity (BLM and U.S. Army, 1994).

3.5 Soils

There is no comprehensive soil survey for Fort Wainwright. The INRMP discusses plans for conducting a soil survey.

Most of the cantonment area is Chena alluvium, an unconsolidated silt-gravel mixture. Discontinuous permafrost lies just under the surface in some areas. The unconsolidated silt-gravel mixture freezes perennially. It has a high bearing strength when frozen, but is subject to sliding and is difficult to compact when thawed. Northernmost portions of the post are in the foothills of the Yukon-Tanana Upland and consist of bedrock covered by muck and loess. Muck inhibits drainage, largely due to the presence of impermeable permafrost below the surface, and has very low bearing strength when thawed. Swale deposits, made up of poorly stratified silt, sand, and organic matter, are scattered along the Richardson Highway and in parts of South Post. These deposits have high ice content and freeze perennially (Nakata Planning Group, 1987).

TFTA comprises different units of unconsolidated material, distributed in broad basins and elongated meander scars. Deposits grade from coarse gravel at heads of fans nearest the Alaska Range, to sand and silt at the bases of fans in the northern part of the basin. Coarse sediments on upper fans are well drained, but fine-grained sediments of lower fans are poorly drained. Frozen ground is within 20 inches of the surface in places and nearly 128 feet thick. Permafrost is absent beneath rivers and lakes, but is common wherever surface water or circulating ground water is absent (Racine et al., 1990).

Soils on YTA have only been mapped at a broad exploratory level of survey. South slopes consist of well-drained silt loams and are generally free of permafrost. Loams grade from shallow, gravelly silt near ridgetops, to silt loams on mid-slopes, to deep moist silt loams on lower slopes. Drainage bottoms and depressions are occupied by shallow, gravelly silt loam covered with a thick layer of peat and underlaid by permafrost. Soils on north-facing slopes are shallow, gravelly silt loams with thick covers and permafrost (BLM and U.S. Army, 1994).

Permafrost is a major factor determining distribution of vegetation and human activities. Permafrost is defined as any material that remains at or below freezing continuously for more than two years. Ice may or may not be present. Permafrost is defined in seven categories in order of increasing ice content. Fort Wainwright lies in a zone of discontinuous permafrost, and the Main Post contains regions designated from Class I to Class V. Class I designates areas completely free from permafrost and is found on south-facing slopes of North Post and in areas west of the airfield. The airfield itself and several other areas are designated Class III. These areas are characterized by soil mixtures of sand, silt, and gravel, and have low ice content. The propensity for subsidence and frost action are proportional to the silt content of the soil. Areas designated as Class V have moderate to high ice content, which consists of thin seams and small lenses. Depth to permafrost is a maximum of four feet. These areas are subject to intense frost action and moderate-to-severe subsidence upon thawing (Nakata Planning Group, 1987).

3.6 Surface Water

Fort Wainwright's surface water resources are diverse and include numerous rivers, streams, ponds, and lakes. The INRMP includes a map (Map 7-6a), which indicates surface drainage on Fort Wainwright.

The Main Post is drained by the Tanana and Chena rivers. The Tanana Flats Training Area is drained by several streams: Wood River, Crooked Creek, Willow Creek, Clear Creek, McDonald Creek, and Bear Creek among them. All drain into the Tanana River, directly or by way of Salchaket Slough. Northern and northeastern portions of the Yukon Training Area are drained by the Chena River and its tributaries such as South Fork Chena River and Hunts Creek. The southern portion of YTA is drained by the Salcha River and its tributary, Ninetyeight Creek. Streams draining the western portion of YTA flow directly or by way of Piledriver Slough into the Tanana River. All streams originating on YTA have their headwaters in the Yukon-Tanana Uplands, in rolling, glacier-free terrain (BLM and U.S. Army, 1994).

Volume of flow fluctuates dramatically by season. During the long period of freeze, usually from October to May, flow is limited to seepage of groundwater from aquifers into streams. Many small streams freeze solid (zero discharge) during winter. Snowmelt typically begins in May and reaches its peak in June. Flow is greatest during June and July. By the end of July, most snow has melted, and a steady flow during August and September is sustained by rainfall. The Chena River reaches peak flow before the Tanana River because it is primarily nonglacier-fed, while the Tanana River is fed by meltwater from glaciers and snowfields in the Alaska Range (Nakata Planning Group, 1987).

Surface water quality on YTA is generally good. The Chena River, from YTA to the confluence with the Tanana River, has been classified by the state of Alaska as Class A (suitable for agriculture, aquaculture, and industrial) Class B (suitable for water recreation), and Class C (suitable for growth and propogation of fish, shellfish, other aquatic life, and wildlife). The pH of the Chena River is slightly above neutral during winter and slightly below neutral in summer. Nitrogen concentration is high in relation to phosphate, which may be the limiting inorganic nutrient for phytoplankton production. Only naturally occurring iron concentrations were higher than the secondary state standards. The high iron concentration in the lower portion of the Chena River may be the result of surface water and groundwater discharge from swampy, muskeg areas in this region. Sediment loads are generally low. Nonglacier fed streams generally carry less than 300 mg/l during high flow, and as little as 10 mg/l during low flow periods (BLM and U.S. Army, 1994).

Lakes are scarce on Fort Wainwright, and many freeze solid during the winter. Only a few are stocked by ADF&G. Blair Lakes are the largest lakes on TFTA.

The INRMP includes surface and ground water monitoring. But water quality, except as it directly relates to erosion, is not a natural resources program within the Army environmental program. Due to water quality laws, it is an environmental compliance program.

However, the INRMP describes programs that impact surface water quality, namely erosion control, protection of wetlands, reduced pesticide use, and awareness among troops regarding protection of water quality. Below discussions relate to these programs, not the water quality program as a whole.

3.7 Groundwater Resources

Much of Fort Wainwright is underlain by an alluvial aquifer. Groundwater in the aquifer is recharged by the Tanana River, while the Chena River and direct infiltration of precipitation contribute small amounts. Groundwater potential is best along the alluvium of the Tanana River, where wells are capable of yielding

3,000 gallons per minute (gpm) at less than 200 feet in depth. The lowest potential is in the rolling hills of the YTA, where wells produce around 50 gpm at the same depth (Nakata Planning Group, 1987).

Groundwater in the Fort Wainwright area tends to have relatively high, naturally occurring levels of metals, especially iron and arsenic. Elevated arsenic levels are prevalent in the upland areas. These are not related to human-caused pollution (Harding Lawson Associates, 1996).

3.7.1 Water Supply

As of February 1996, Fort Wainwright had nine main drinking wells, two of which were active (Buildings 3559-1A and 3559-2B). In addition, there are drinking water wells for individual buildings. Water use on Fort Wainwright varies from 1.5 million gallons per day in winter to 2.0-2.5 million gallons per day in summer (Fort Wainwright data).

The Fort Wainwright cantonment area is a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) site. Groundwater contamination from past leaking storage tanks, spills, and industrial operations is prevalent within the cantonment area. This has not affected drinking water on the post. However, one area just to the west of the cantonment area has contaminated drinking water, and the Army is paying to ship water to users in this area.

3.8 Vegetation

Fort Wainwright encompasses a large amount of land with a wide array of physiographic features. Vegetation patterns are influenced by climate, soil, topography (slope, aspect, and elevation), depth to water table, permafrost, and fire. Native vegetation was removed from much of Main Post during original construction in the 1940s. Due to landscaping and other human activities, vegetation of Main Post does not reflect natural vegetation patterns of the area (Nakata Planning Group, 1987).

Fort Wainwright has four vegetation types: moist tundra; treeless bogs; open, low growing spruce forests; and closed spruce-hardwood forests. The white spruce-paper birch forest of interior Alaska is often called the boreal forest, or taiga. Vegetation types of interior Alaska form a mosaic and reflect fire history, slope and aspect, and presence or absence of permafrost (Viereck and Little, 1972).

A typical vegetation profile from lowland, up a south slope, and down the north slope, would include the following: water, barren, high brush, deciduous forest, white spruce forest, moist tundra, black spruce forest, and mixed forest (Bonito, 1980). This profile does not precisely match Viereck and Little's (1972) vegetation types, which were mapped on a statewide scale. Wetlands occur at various altitudes, and sometimes only during early successional stages. Localized conditions often result in various combinations of vegetation:

Barren Land. Barren ecosystems on Fort Wainwright are recently deposited gravel bars in rivers.

High Brush. The high brush ecosystem exists as a transitional zone, or ecotone, between forests and barren areas or tundra. It normally is a narrow vegetation band along floodplains or just above tree line. The size of the transitional zone varies dramatically, and in places where there is a well-defined tree line, it may be quite small. The high brush area, however small, is important ecologically. It sustains small to medium-sized woody plants, shrubs, and bushes (no higher than 20 feet) including alder, willows, cottonwood, birch, mountain ash, and prostrate white spruce. Along floodplains, high brush forms a thick, almost impenetrable barrier. There is little or no ground cover. In subalpine settings, stands may be thinner and more persistent. Ground vegetation is grasses, mosses, berries, and lichens that often form thick layers. A mixture of wildlife from the alpine and forested communities use the area. The high brush ecosystem is particularly important for moose forage (Bonito, 1980).

Forest. Forests are dominant, diverse ecosystems on Fort Wainwright. Vegetation ranges from pure stands of spruce or hardwoods to spruce/hardwood mixtures. Black spruce stands occur where drainage is poor, such as flat valley bottoms, lakesides, and muskegs. White spruce stands are rare due to anemic soils and frequent wildfires. Pure stands of paper birch and quaking aspen are commonly found in well-drained uplands and ridge tops. Most forests are heterogeneous mixtures of spruce (white and black) and hardwoods. Predominant hardwoods are birch, quaking aspen, and balsam poplar. Higher, well-drained ridges tend toward stands with a white spruce/birch mixture in early stages leading to pure spruce at the climax stage. In other areas, aspen forms a canopy over an understory of white spruce. Bottomland white spruce/balsam popular forest occurs on level floodplains, low river terraces, and south slopes. White spruce is dominant and reaches a height of 110 feet. Stands may persist for 50 to 200 years before being replaced by black spruce. Moss gradually accumulates as the forest ages. The deep mat insulates the permafrost below and prevents summer thaw, giving rise to wetter conditions that favor black spruce. Lowland black spruce/hardwood is the most common forest type in interior Alaska. On colder northern aspects, black spruce may occur up to 2,500 feet (Bonito, 1980).

Moist Tundra. On Fort Wainwright, moist tundra occurs on tops of hills at 2,500 to 3,000 foot elevations. This windy and cold area is above tree line, and supports only the hardiest vegetation in a short growing season. Upper reaches of this zone are generally steep and rocky; vegetation is sparse, scattered grasses, dry land sedges, lichens, club mosses, and low mat-forming herbaceous and woody plants. Woody perennials rarely exceed three feet in height. This vegetation type is extremely sensitive to damage (Bonito, 1980).

Wetland. On Fort Wainwright, wetland can be divided into marshes and shrub wetlands. Much of the TFTA is covered by treeless, herbaceous marsh. These marshes are unique in that they are largely dependent upon groundwater discharge, and most frequently develop as floating vegetation mats over deeper water. The floating mat consists of a dense network of roots and organic material of variable thickness. Standing water may or may not be present on top of the undisturbed mat, and may or may not be moving. Dominant mat-forming species are graminoid sedge, grass and horsetail species, and herbaceous broadleaf forbs, such as buckbean and marsh marigold. In addition, submerged aquatics, such as bladderwort, and floating aquatics, such as duckweed, are frequently found in these areas. Trees and shrubs are absent, except for occasional willows (Racine et al., 1990). These wetlands attract large numbers of trumpeter swans and other waterfowl. Williams (1994) studied vegetation patterns in the Tanana Flats Wetland Complex. Her report includes plant species data from five survey plots and relationships among these species.

Shrub wetlands, also known as bogs, muskeg, and low brush, are associated with slightly higher relief on the edges of marshes and in poorly-drained basins and depressions with cold, waterlogged soils. The surface consists primarily of a thick layer of peat over a mottled gray silt or silt loam. The water table, if not exposed, is found only a few inches down. During periods of heavy precipitation, bogs may form temporary lakes. Depth to ice-rich permafrost is often less than 30 inches. Ground cover is characterized by dense accumulation of mosses, lichens, sedges, rushes, liverworts, mushrooms and other fungi. Stunted black spruce occasionally appear. Along margins of bogs and in drier areas, grasses, small shrubs, berries, and woody plants, such as willow and dwarf Arctic birch, proliferate (Bonito, 1980).

The interaction of soils, permafrost, and vegetation on lowland sites results in a dynamic mosaic of ecosystems. Dead and falling trees along the boundary between marsh and forested upland or forested islands suggest massive permafrost thaw and subsidence. Heat is transferred from marsh water to the permafrost, with subsequent melting and subsidence of the upland surface. This results in a shrinkage of forested islands and uplands. Conversely, forested islands may expand through a rising of the permafrost table. This results in the rise of the peat above the water level, improving drainage, and allowing trees to become established (Racine et al., 1990).

Fire plays a significant role in forest development. More than 100,000 acres have burned on Fort Wainwright since 1980. White spruce stands may persist for 200 years in the absence of fire. Alternatively, over a 60-year period, a burned stand can progress from willow to aspen/birch to white spruce/aspen, and eventually to a mature black spruce forest. Wet muskeg sites may recover to complete vegetative cover in 3-5 years, while lichens may take 50-100 years. Single fire events in a white spruce/hardwood stand may perpetuate white spruce/birch communities, while repeated fires result in birch/aspen communities (Bonito, 1980).

A floristic inventory of Fort Wainwright was conducted (Tande et al., 1996) during 1995-96 by CRREL in preparation for Land Condition-Trend Analysis (LCTA). The inventory included vascular plants, but not cryptogams (i.e. mosses and lichens). Fort Wainwright has one set of museum mounts and one set of laminated specimens for fieldwork. Two other sets of voucher specimens are stored at the Herbarium, University of Alaska Museum, Fairbanks, and the University of Alaska, Anchorage.

Plants were collected from five units within the Tanana Flats of the Tanana-Kuskokwim Lowland, three units of the Yukon-Tanana Upland, and the cantonment area. A total of 1,005 collections were made at 123 sites within these units. The inventory found 491 taxa (including subspecies and varieties), representing 227 genera in 72 families. This is about 26% of Alaska's vascular flora. At least 10 taxa collected represented extensions of known ranges (Tande et al., 1996).

3.8.1 Threatened or Endangered, and Species of Concern Plants

No federally-listed endangered, threatened, or candidate plant species were found in the floristic inventory or any other survey on Fort Wainwright. This was expected because there are no listed or candidate species native to interior Alaska.

Eleven species collected by Tande et al. (1996) were vascular plants being tracked by the Alaska Natural Heritage Program's Biological Conservation Database for interior Alaska.

Species	**Global Ranking***	**Alaska Ranking****
Artemisia laciniata	G5	S2
Carex crawfordii	G5	S2S3
Ceratophyllum demersum	G5	S1S2
Cicuta bulbifera	G5	S1S2
Cryptogramma stelleri	G5	S2S3
Dodecatheon pulchellum ssp. *pauciflorum*	G5T5Q	S2
Lycopus uniflorus	G5	S3
Oxytropis tananensis	G3	S3
Rorippa curvisiliqua	G5	S1
Rosa woodsii	G5	S1S2
Syntheris borealis	G3G4	S3S4

* Alaska Natural Heritage Program Rare Species Global Rankings

G3	Either very rare and local throughout its range or found locally in a restricted range (typically 21-100 occurrences)
G4	Apparently secure globally
G5	Demonstrably secure globally
G#Q	Taxonomically questionable
G#G#	Global rank of species uncertain; best described as a range between the two ranks

** Alaska Natural Heritage Program Rare Species State Rankings

S1	Critically imperiled in state because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the state (typically 5 or fewer occurrences, or very few remaining individuals or acres)
S2	Imperiled in state because of rarity or because of some factor(s) making it very vulnerable to extirpation from the state (typically 6 to 20 occurrences, or few remaining individuals or acres)
S3	Rare or uncommon in the state (typically 21-100 occurrences)
S4	Apparently secure in state, with many occurrences
S#S#	State rank of species uncertain; best described as a range between the two ranks

3.8.2 Forest Inventory

The Tanana Chiefs Conference (1993) conducted an inventory of forest resources on military land withdrawals in interior Alaska. The inventory included the Main Post, the periphery of the TFTA, and all of Eielson AFB and the YTA, excluding closed areas. Total land area considered for forest management was 325,169 acres for the Main Post and TFTA, and 290,308 acres on the YTA unit. Forty-eight percent of the Tanana Flats unit (156,927 acres) and 75% of the YTA unit (217,751 acres) were classified as forest land, indicating areas with commercial forestry potential. The remainder was classified as non-forest land, rivers, or water. The minimum mapping unit was approximately 15 acres. Sawtimber was defined as conifers greater than nine inches diameter at breast height (dbh) and deciduous trees greater than 11 inches dbh. Pole timber was defined as conifers 5-9 inches dbh and deciduous trees 5-11 inches dbh.

The below table summarizes results of this survey in terms of commercial timber available on Fort Wainwright.

Timber Resources on Fort Wainwright*

Unit	Species	Acreage	Area %	Volume*	Volume %
TFTA	**Sawtimber**				
	White Spruce	5,240	11.4	56.06 mil	27.2
	Balsam Poplar	1,777	3.9	5.15 mil	2.5
	White Spruce/Hardwood	1,217	2.7	11.686 mil	5.7
	White Spruce/Balsam Poplar	3,954	8.6	48.241 mil	23.3
	Total Sawtimber	**12,188**	**26.6**	**121.14 mil**	**58.7**
	Pole Timber				
	White Spruce	1,174	2.6	5.05 mil	2.4
	Balsam Poplar	3,578	7.8	4.65 mil	2.3
	Hardwood	10,547	23.0	11.602 mil	5.6
	White Spruce/Hardwood	5,309	11.6	18.05 mil	8.7
	White Spruce/Black Spruce	2,086	4.6	2.503 mil	1.2
	White Spruce/Balsam Poplar	5,259	11.5	32.606 mil	15.8
	Black Spruce/White Spruce/Hardwood	5,649	12.3	10.732 mil	5.3
	Total Pole Timber	**33,602**	**73.4**	**85,196 mil**	**41.3**

Unit	Species	Acreage	Area %	Volume*	Volume %
YTA	**Sawtimber**				
	White Spruce	526	1.0	5.625 mil	5.2
	Balsam Poplar	16	0.0	.047 mil	0.0
	White Spruce/Hardwood	61	0.1	.581 mil	0.5
	White Spruce/Balsam Poplar	612	1.1	7.470 mil	6.9
	Total Sawtimber	**1,215**	**2.3**	**13.772 mil**	**12.6**
	Pole Timber				
	White Spruce	470	0.9	2.020 mil	1.9
	Hardwood	24,437	45.4	26.881 mil	24.7
	Balsam Poplar	70	0.1	.092 mil	0.1
	White Spruce/Hardwood	8,881	16.5	30.195 mil	27.7
	White Spruce/Black Spruce	1,212	2.3	1.455 mil	1.3
	White Spruce/Balsam Poplar	279	0.5	1.729 mil	1.6
	Black Spruce/White Spruce/Hardwood	17,307	32.1	32.882 mil	30.2
	Total Pole Timber	**52,656**	**97.7**	**95.253 mil**	**87.4**

* Board Feet

Potential annual harvest levels were calculated using the area control method with the following assumptions:

- White spruce, birch, and aspen are crop species. Balsam poplar, black spruce and tamarack are likely to remain non-marketable in the near future.
- Regeneration of softwoods and hardwoods can be quite variable, but it is estimated that 10 years will be required for trees to become established and reach “free to grow” status.
- The estimated annual allowable harvest is based on present average net volumes.
- White spruce sawtimber can be produced in 120 years, and hardwood sawtimber and fuelwood can be produced in 80 years.

Based on inventory data and assumptions above, 229 acres/year of white spruce sawtimber could be harvested from the Tanana Flats, yielding 324,000 cubic feet or 1,282,000 board feet. Potential hardwood harvest was 251 acres/year, yielding 152,000 cubic feet or 601,432 board feet. For the YTA unit, potential annual harvest level of white spruce sawtimber was 123 acres/year, yielding 92,000 cubic feet or 340,000 board feet. Potential hardwood harvest was 317 acres/year, yielding 183,000 cubic feet or 676,304 board feet.

3.8.3 Wetland

Wetland on Fort Wainwright consists of freshwater marshes and shrub wetlands. Some of these wetlands may qualify as jurisdictional wetlands as defined in Section 404 of the Clean Water Act. Jurisdictional

wetlands are determined by the Corps of Engineers, Anchorage District Office, on the basis of hydric soils, vegetation, and hydrology.

National Wetlands Inventory mapping was completed for the installation in 1985. The NWI, however, is inadequate to meet the needs of the installation since it often misses considerable acreage and lacks detailed classification.

In 1995 the Waterways Experiment Station (WES) began a delineation of wetlands on Fort Wainwright, including their values and functions and management recommendations. Upon completion in 1997, the delineation will provide detailed information on size and composition of wetland resources on the installation.

3.9 Fauna

Most species indigenous to central Alaska can be found on Fort Wainwright. Two important characteristics of animal life on the installation are a high quality moose population and a concentration of waterfowl. A list of verified species is in Appendix 8-3 of the INRMP.

3.9.1 Game and Furbearers

Moose is a key wildlife species on Fort Wainwright. Fort Wainwright includes Game Management Unit 20, which has the state's largest moose harvest. Although not considered good winter moose habitat, TFTA supports high concentrations during spring and fall, and is the largest known moose calving area in interior Alaska (Nakata Planning Group, 1987). The South Fork Chena River is a moose concentration area during fall and winter. Other big game species occur on the installation, but only grizzly bear and black bear are hunted to any significant extent.

Fort Wainwright is part of the historic range of the Fortymile caribou herd, but rarely are caribou now found on the installation. During the early 1900s this herd was the largest in Alaska and one of the largest in the world, ranging over 85,000 square miles. In 1920 the herd was estimated at 568,000, but herd size fell to 10,000-20,000 in the 1930s. The herd grew to perhaps 60,000 in 1956, but it decreased to about 6,500 by 1973. This crash was probably due to overharvesting, unfavorable weather, and wolf predation. By 1990 the herd had increased to about 22,000 caribou, and has remained stable (Anonymous, 1995b).

Several small game and related species found on Fort Wainwright include coyote, wolf, lynx, red squirrel, snowshoe hare, marten, beaver, mink, ruffed grouse, sharptail grouse, spruce grouse, ptarmigan, and numerous ducks and geese. Moose, grouse, hare, and ptarmigan are the most pursued game by hunters on Fort Wainwright (Von Rueden and Bruce, 1994). Game harvest data are summarized in Appendix 14-4 of the INRMP.

3.9.2 Nongame Birds and Mammals

There is no complete mammal survey of Fort Wainwright. Hoary marmots are an unusual species for the installation, found occasionally at YTA. An introduced and unexpected species found on both Fort Wainwright and Eielson AFB is the groundhog, probably originally brought in as pets. A list of mammals known to occur on the installation is included in Appendix 8-3.

Some of the most common nongame birds observed on the installation include the alder flycatcher, American kestrel, hawk owl, great-horned owl, yellow-rumped and orange-crowned warbler, common and hoary redpoll, dark-eyed junco, hairy woodpecker, red-tailed hawk, mew gull, grey jay, common raven, black-capped chickadee, American robin, varied thrush, hermit thrush, Swainson's thrush, grey-cheeked thrush, Bohemian waxwing, snow bunting, and cliff swallows (BLM and U.S. Army, 1994; U.S. Army, 1981).

3.9.3 Fish

Only 12 lakes and ponds on Fort Wainwright have the potential of supporting fish populations due to overwinter loss. The Chena and Salcha rivers support Arctic grayling, king salmon, chum salmon, sheefish, humpback whitefish, round whitefish, Arctic lamprey, Alaska blackfish, least cisco, burbot, longnose sucker, northern pike, slimey sculpin, and lake chub. The Chena and Salcha rivers are important spawning areas for summer chum and king salmon. All of these species inhabit the Tanana River seasonally. Bear, McDonald, and Clear creeks produce grayling and coho salmon.

3.9.4 Reptiles and Amphibians

Wood frogs (*Rana sylvatica*) are the only amphibians on Fort Wainwright. There are no reptiles.

3.9.5 Threatened or Endangered, and Species of Special Concern Animals

No federally-listed threatened or endangered animals are resident on Fort Wainwright. The American peregrine falcon (*Falco pergrinus*) was delisted in 1999. Though not known to nest on Fort Wainwright, it is an infrequent migrant. Potential habitat for feeding or nesting can be found in the Salcha Bluff area (U.S. Army, 1981).

A federally-listed threatened and endangered species in the lower 48 states, the bald eagle (*Haliaeetus leucocephalus*), is locally common. It nests in the Granite Tors area just north of YTA, and possibly along Tanana River bluffs.

Six birds are listed as species of special concern by the state: the gray-cheeked thrush *(Catharus minimus*), blackpoll warbler *(Dendroica striata),* American peregrine falcon, olive-sided flycatcher *(Contropus borealis*), Arctic peregrine falcon *(Falco peregrinus tundrius*), and Townsend's warbler (*D. Townsendii*). All but the Arctic peregrine falcon have been confirmed on Fort Wainwright (CEMML, 1998).

Two species confirmed on Fort Wainwright are considered sensitive by the U.S. Forest Service, the trumpeter swan (*Cygnus buccinator*) and American osprey (Pandion haliaetus carolinensis).

3.10 Cultural Resources

Less than two percent of Fort Wainwright has been surveyed for archeological sites, and 70 sites have been found. Two districts (which include 11 sites) and one other site have been determined to be eligible for inclusion in the National Register by the Army and the SHPO. All cantonment buildings dating prior to 1945 have been inventoried. One National Historic Landmark, Ladd Field, has been formally designated as eligible for inclusion in the National Register.

In 1986, USARAK completed a Historic Preservation Plan for Army lands in Alaska, including Fort Wainwright (Bacon et al., 1986). This Plan was never signed, but contains a summary of most known information pertaining to Fort Wainwright cultural resources. The remainder of this section is condensed from this document, unless referenced otherwise.

Surveys have been generally very site specific, often required for planned construction projects. Most sites have been found in the lowland spruce/hardwood vegetation community. Only a relatively small portion of Fort Wainwright has high sensitivity with regard to cultural resources, including the cantonment area, Blair Lakes Bombing Range and Maneuver Area, portions of TFTA, and Manchu Drop Zone. These are the highest priorities for survey. The rest of the installation is low-moderate in sensitivity.

The Fort Wainwright area has probably supported human populations for 10,000-12,000 years. Interior Alaska contains the oldest verifiable prehistoric remains in the state, since the Interior was ice free during the Wisconsin glaciation.

The Athapaskan original homeland was the Tanana Valley. The Tanana Indians, a branch of the Northern Athapaskans, lived there. The Tanana was a highly mobile group at the time of European contact, moving to fish camps in summer and various hunting and trapping camps during other seasons. Several village sites are reported near Wood River Buttes, just northwest of the Fort's boundary and near Fairbanks, but they have not been located. The White Mountains and Tanana Hills (YTA) were used sporadically during the past several thousand years for hunting, but probably not for permanent year-round settlements.

Indirect European contact began in the 1830s and 1840s, and direct trade began in the 1860s. During the 1860s prospectors and explorers penetrated Tanana territory, and the discovery of gold in 1902 created the great influx of white settlers. Shortly thereafter, the traditional way of life of the Tananas was a thing of the past.

Only eight prehistoric and no historic sites have been found on YTA. Only one site is "eligible" for the National Register (BLM and U.S. Army, 1994).

4.0 ENVIRONMENTAL CONSEQUENCES

Neither the proposed action nor the partial implementation alternative would have significant negative environmental consequences compared to existing conditions. The other options alternative could have a wide range of environmental consequences, ranging from positive to very negative, on various components of the Fort Wainwright environment. The alternatives differ significantly in their ability to proactively manage natural resources, support the military mission, mitigate environmental damage due to the Army mission, and comply with environmental laws.

The INRMP provides guidelines for managing natural resources, a course of action designed to significantly improve the management of Fort Wainwright's natural resources. The INRMP allows flexibility in management options as more information becomes available based on ongoing and planned studies.

This section provides a discussion of the environmental impacts of each alternative including the proposed action. This section is organized by alternative, with the impacts of each alternative discussed by the resources from Section 3.0.

4.1 Fully Implement INRMP Alternative

4.1.1 Geology and Soils

The proposed action includes an integrated program for planning land use, evaluating land use effects, and maintaining and repairing damaged lands. The Natural Resources Conservation Service is conducting a soil survey of Fort Wainwright, which will be used to plan natural resources and military activities on the post. The INRMP provides protection for areas with permafrost and areas classified as moist tundra. It also provides protection for soils and vegetation on Sage Hill.

The INRMP provides for repair of areas with damaged soil structure, particularly that caused by the military mission. Brief periods of increased erosion would occur during damaged sites maintenance and rehabilitation activities, but these would be more than compensated through increased environmental awareness while training, use of hardened sites, repair of significant erosion sites, and including natural resources implications

in military project planning. The proposed action offers the most effective protection and mitigation for damages incurred to soils due to the Army mission.

4.1.2 Water Resources

The proposed action includes an integrated program for planning land use, evaluation of land use effects, and management and repair of significantly eroding lands. The proposed action includes projects to monitor erosion from the Stuart Creek watershed, site military missions and facilities on lands where negative impacts are minimized, enforce environmental restrictions (including those designed to protect water quality), protect watersheds, repair road drainages, minimize erosion, reduce pesticide use, use NEPA to review proposed actions for impacts on water quality, and increase awareness among troops as to the need to protect water quality. Brief periods of increased turbidity are possible during repair and construction activities, but these should be more than compensated for by increased environmental awareness while training, use of hardened sites, repair of significant erosion sites, improvements to road drainage systems, and including natural resources implications in military project planning. The proposed action offers the most effective mitigation for damages incurred to surface waters due to the Army mission. Implementation of the proposed action would not affect groundwater.

4.1.3 Biological Resources

The proposed action would provide management of faunal and floral resources at Fort Wainwright on an integrated basis. The INRMP uses an ecosystem management strategy to achieve biological diversity conservation, in accordance with the Department of Defense Biodiversity Initiative (The Keystone Center, 1996). It includes the use of native species, as emphasized in the presidential memorandum to the heads of federal agencies (Office of the President, 1994).

The plan includes actions to manage natural ecosystems on Fort Wainwright, including inventory and monitoring flora and fauna to make management decision, per the adaptive management process integral to ecosystem management. A geographic information system will be used to store, analyze, and portray data to facilitate the adaptive management process.

Programs which directly affect biological resources include the following:

- Wildlife habitat manipulations, emphasizing moose and ruffed grouse habitat
- Wildlife population management, emphasizing fish and wildlife harvest management and fish stocking
- Monitoring trumpeter swans to determine effects of airboats on their habitat
- Use of an ecological land classification system to prioritize management options
- Black bear ecological investigations and their effects on population management
- Protection of sensitive ecological areas, including wetlands, Clear Creek and Wood River Buttes, Tanana Flats moose calving areas, moist alpine tundra, and cultural resources sites
- An integrated approach to pest management
- Minimizing damage to wildlife habitat by troops and other users
- Means to reduce nonpoint pollution of aquatic resources
- Wildfire management and the use of prescribed burning
- Repair of habitat damaged by troop training

- Managed furbearer harvest
- Research on ecosystem parameters to provide information upon which to base management decisions
- Enforcement of laws and regulations that protect biological resources
- A conservation education program to inform users of Fort Wainwright lands of the need to conserve biological resources
- An outdoor recreation program designed to use renewable biological resources in a sustained fashion
- Using the NEPA process to evaluate proposed projects for their effects on biological resources

This INRMP also provides a means to use biological resources for a wide variety of human uses, a major tenant of ecosystem management. These uses include military training, the production of forest products, and a wide variety of outdoor recreational uses, including nature study and photography, hunting, fishing, trapping, skiing, boating, camping, and others.

4.1.4 Cultural Resources

The proposed implementation of the INRMP would be beneficial to the identification and protection of historic resources. The INRMP does not emphasize cultural resources protection, but it contains provisions to locate historic sites if natural resources ground-disturbing projects are proposed for sites that are unsurveyed (Section 19-3 of the INRMP). The INRMP includes steps to protect cultural resources sites from damage during implementation of this plan. The NEPA process (INRMP Section 20-1) is used to ensure protection of cultural resources while implementing the INRMP.

4.2 Partial Implementation Alternative

4.2.1 Geology and Soils

The partial implementation alternative offers a less comprehensive program for the control and repair of negative soil impacts than the proposed action. Partial implementation of ITAM would reduce the planning capabilities of the program, so that the emphasis would be on repairing highly visible and disruptive damage rather than preventing or minimizing damage to soils. Consequently, negative soil impacts would be greater with partial implementation than under the proposed action.

4.2.2 Water Resources

Partial implementation, by definition, offers a less comprehensive program than the proposed action for the control and repair of damaged areas and road drainages, which contribute the most sedimentation. Partial implementation of ITAM would reduce the planning capabilities of the program, so that the emphasis would be on repairing highly visible and disruptive damage rather than preventing or minimizing sedimentation from ongoing military activities. Consequently, sedimentation of surface waters would be greater than under the proposed action. Partial funding would not affect the reduction in pesticide use.

4.2.3 Biological Resources

The alternative action would be less effective than the proposed one since it would emphasize reaction to problems rather than a proactive approach to natural resources management. Partial implementation of the INRMP would emphasize responses to current needs to support the military mission as well as site-specific responses to environmental compliance. Surveys and monitoring of natural resources, as well as long-term programs, would be lower priority. A partial implementation approach would achieve compliance with laws, but it would not provide as many benefits to biological resources.

This alternative would help conserve biodiversity, but its overall effects on more sensitive plant and animal species would be significantly less than the proposed action. Conservation education and environmental awareness programs would be a low priority under a partial implementation action. Implementation of this alternative would decrease outdoor recreational opportunities, particularly those associated with moose hunting, on Fort Wainwright. Partial implementation would likely decrease the effectiveness of the wildlife law enforcement program.

4.2.4 Cultural Resources

The partial implementation alternative would have no negative effects on cultural resources since USARAK would still have to comply with laws and policies requiring surveys prior to potential undertakings. It would probably somewhat enhance the effort to locate cultural sites, and such surveys would probably eventually lead to protection of these sites. However, the amount of survey would be lessened as a result of less projects under this alternative action.

4.3 Other Management Options Alternative

4.3.1 Geology and Soils

The Army's ITAM program is the most advanced intensive land management program in existence for preventing and mitigating damage to lands by military operations, so it is difficult to envision other options that would provide a more comprehensive package for the protection of soils on Fort Wainwright. The best means to obtain a greater rate of return from ITAM implementation would be more expenditure for ITAM, not a different soils protection/ rehabilitation program. However, the Army is already funding ITAM at USARAK installations at its highest level of four categories (over $1 million specific to Fort Wainwright during 1997-2001), so additional funding for ITAM is not a viable option.

Almost any other option would likely provide less protection and mitigation of soil losses than the proposed action, since other programs are not specifically developed to deal with military related activities impacts on the soils. Other options could range from intensive traditional erosion control programs, which would provide relatively good soils protection, to virtually no erosion control or damage prevention which would have negative effects on Fort Wainwright soils (and associated vegetation) over the next five years.

4.3.2 Water Resources

The Army's ITAM program is the most advanced intensive land management program in existence for preventing and mitigating damage to lands by military operations, so it is difficult to envision other options that would provide a more comprehensive package for the protection of surface water quality from sedimentation on Fort Wainwright. The ITAM Environmental Awareness component includes using education to minimize petroleum product spills while training on Fort Wainwright, which will help minimize pollution of surface and possibly ground water.

The best means to obtain a greater rate of return from ITAM implementation would be more expenditures for ITAM, not a different erosion control program. However, the Army is already funding ITAM at Fort Wainwright at its highest level of four categories (over $1 million specifically for Fort Wainwright during 1998-2002), so additional funding for ITAM is not a viable option.

Almost any other option would likely provide less protection of soils and mitigation of sedimentation than the proposed action, since other programs are not specifically developed to deal with military related activities impacts on soils and watersheds. Other options could range from intensive traditional erosion control programs, which would provide relatively good sedimentation protection, to virtually no erosion control,

which would have negative effects on Fort Wainwright's wetland and surface water quality in areas of heavy military use over the next five years.

4.3.3 Biological Resources

Management options selected within the INRMP are the result of decades of on-the-ground management of forests and biological resources on Fort Wainwright and other Army and Air Force installations in Alaska, as well as countless consultations with local and regional resources management professionals. The INRMP package represents the best opinions of USARAK natural resources personnel as well as those of cooperating partner agencies.

Therefore, the other options alternative, as a total package, would likely produce a lesser degree of ecosystem-wide benefits or be detrimental to some biological resources. Below are examples of other options and their likely effects:

- Natural succession could be allowed to proceed in areas where timber harvest, prescribed burning, or let-burn policies could be conducted. This, in turn, would decrease the value of Fort Wainwright for moose, ruffed grouse, and other species which need earlier successional stages.
- Fort Wainwright could be managed for maximum security and minimum interference with the military mission. This would adversely affect outdoor recreation and cooperation with other agencies for natural resources studies.
- Fort Wainwright could be managed using more intensive fire suppression. This would alter basic ecosystem functionality which has evolved over millennia.
- Fort Wainwright landscapes could be more intensively managed for human-related aesthetics qualities. This would reduce the amount of wildlife habitat for most native species, increase risks involved with more pesticide/herbicide use, reduce wetlands and associated species, and encourage the spread of exotic plant and animal species.

The other options alternative would likely produce a less-balanced effect on biological resources than the proposed action. However, the degree of effect would be dependent upon objectives of natural resources management and the degree of implementation applied.

4.3.4 Cultural Resources

The other options alternative would have no negative effects on cultural resources since USARAK would still have to comply with laws and policies requiring surveys prior to potential undertakings. Many other options are potential undertakings and would require cultural resources surveys, and if such sites were found, protection or mitigation alternatives would be implemented. The amount of survey would be determined by the number of ground-disturbing projects proposed for sites that are unsurveyed.

4.4 No Action Alternative

The no action alternative would not implement an INRMP for Fort Wainwright. The Sikes Act (16 U.S.C. 670a *et seq.*) as amended requires the Army implement an INRMP for Fort Wainwright. Implementation of the no action alternative will result in the Army's noncompliance with this federal law and, therefore, is not a viable alternative. As a result, the environmental impacts of the no action alternative will not be discussed.

5.0 LIST OF PREPARERS

The Environmental Assessment (EA) was prepared by Gene Stout and Associates, and the Center for Ecological Management of Military Lands. Data for completion of the EA was obtained from the INRMP,which includes a listing of the individuals who reviewed the INRMP (page iii) and those who contributed to its development (EA, Section 6.0, Persons and Agencies Contacted).

6.0 PERSONS AND AGENCIES CONTACTED

The following persons were contacted during the preparation of the INRMP and/or during preparation of this Environmental Assessment.

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Boudreau, Toby - Assistant Area Wildlife Biologist

Collins, Bill - Research Biologist

Dale, Bruce - Area Wildlife Biologist

Hallberg, Jerry - Area Fisheries Biologist

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Keech, Mark - Graduate student working with ADF&G

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Buenau, Peter H. - Fairbanks Area Forester

Clautice, Stephen F. - Assistant Regional Forester, Resource Management

Bureau of Land Management, U.S. Department of Interior

Bouts, Dick - District Co-Manager, Northern District Office

Burrows, Dan - Tanana Zone, Assistant Fire Management Officer, Alaska Fire Services

Cook, John P. - Archeologist

Foreman, Gary - Realty Specialist

Gronquist, Ruth - Wildlife Biologist

Jandt, David - Fire Management Officer - Military, Alaska Fire Services

Mobraten, Dave - Realty Specialist

Theisen, Skip - Tanana Zone, Fuels Management Specialist, Alaska Fire Services

Forest Service, U.S. Department of Agriculture

Holsten, Edward H. - Entomologist, State and Private Forestry/Researcher, Pacific Northwest Experiment Station

Natural Resources Conservation Service, U.S. Department of Agriculture

Rippy, Ann - Agronomist, Fairbanks Service Center

U.S. Army Alaska

Breun, Jim - Range Manager, Directorate of Plans, Training, Security, and Mobilization, Fort Richardson

Bruce, Pam -Biological Technician, Natural Resources Branch, Fort Wainwright

Douglas, Linda - Public Affairs Officer, Fort Wainwright

Forbes, Jeff (Spec 4) - Game Warden, PMO, Fort Wainwright

Gossweiler, William - Chief, Natural Resources Branch, Fort Richardson

Griffin, Lee - Environmental Protection Specialist, Environmental and Natural Resources Division, Fort Wainwright

Hill, Fred - Pest Controller, DPW, Fort Wainwright

Kenny, Brian (Spec 4) - Game Warden, PMO, Fort Wainwright

Larson, Gary - ITAM Program Manager, Natural Resources Branch, Fort Richardson

Lipyanic, Deb - ITAM Coordinator, Natural Resources Branch, Fort Wainwright

O'Neal, Howard (Butch) - Chief, Range Control, Fort Wainwright

Quirk, Bill - Environmental Scientist, Natural Resources Branch, Fort Richardson

Ringen-DeCecco, Jackie - Environmental Specialist, Environmental and Natural Resources Division, Fort Wainwright

Robertson, Bob - Fire Chief, Fort Wainwright

Ruerup, Charles - Chief, Environmental and Natural Resources Division, Fort Wainwright

Spiers, Ken - Chief, Natural Resources Branch, Fort Wainwright

Van Den Heuvel, Walt - Forest Technician, Natural Resources Branch, Fort Wainwright

U.S. Fish and Wildlife Service

MacIntosh, Erv - Biologist, Ecological Services, Fairbanks

Sousa, Pat - Field Supervisor, Ecological Services, Fairbanks

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FINDING OF NO SIGNIFICANT IMPACT

ENVIRONMENTAL ASSESSMENT

FOR IMPLEMENTATION OF AN INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN FORT WAINWRIGHT, ALASKA

NOVEMBER 1999

DESCRIPTION OF ACTION: United States Army Alaska (USARAK) proposes to fully implement an Integrated Natural Resource Management Plan at Fort Wainwright during 1998-2002 to manage natural resources, support the military mission, provide outdoor recreation opportunities and comply with various environmental laws. Implementation will include ongoing operations over the five-year period using both in-house and external personnel. The primary thrust of the program will be to survey natural resources and implement programs to conserve and manage them in a proactive manner in compliance with environmental laws and regulations.

ANTICIPATED ENVIRONMENTAL EFFECTS: The only adverse impacts identified were temporary increases in soil erosion and resulting sedimentation of surface waters during land rehabilitation actions. Potential negative impacts would be more than offset by positive impacts of implementing this Integrated Natural Resources Management Plan. No adverse impact is expected to occur to any federally-listed threatened or endangered plant or animal species. No significant adverse environmental impacts are anticipated for geology, soils, water quality, biological resources, or cultural resources. This proposed action would positively impact most of these resources.

CONCLUSIONS: Based on a review of the information contained in this Environmental Assessment, it is concluded that the implementation of the Fort Wainwright Integrated Natural Resources Management Plan is not a major federal action which would significantly affect the quality of the environment within the meaning of Section 102(2)(c) of the National Environmental Policy Act of 1969, as amended. Accordingly, the preparation of an Environmental Impact Statement for this proposed action is not required.

DEADLINE FOR COMMENTS AND POINTS OF CONTACT FOR INFORMATION: Interested parties are invited to submit, in writing, any comments or objections they may have concerning the proposed action. Comments received will be reviewed and relevant issues will be addressed and incorporated into a revised EA. If no comments are received during the public comment period, the original EA will become the final EA document. For further information, please contact **Chuck Canterbury, Media Relations Officer, United States Army, Alaska (USARAK), Alaska Public Affairs Office, Fort Richardson, Alaska 99505-5900, telephone (907) 384-2113.**

NOTICE OF AVAILABILITY AND PUBLIC COMMENT PERIOD

The National Environmental Policy Act (NEPA) of 1969 is implemented by Army Regulation (AR) 200-2 (Environmental Effects of Army Actions), December 1988. Chapter 5 of AR 200-2 authorizes the preparation of a Finding of No Significant Impact (FONSI) after an Environmental Assessment (EA) review indicates that an Environmental Impact Statement (EIS) is not required.

ACTION: United States Army Alaska (USARAK) proposes to implement an Integrated Natural Resource Management Plan (INRMP) at Fort Wainwright during 1998-2002 to manage natural resources, support the military mission, provide outdoor recreation opportunities, and comply with various environmental laws.

ENVIRONMENTAL DOCUMENTS: An EA and FONSI have been prepared for the implementation of the INRMP at Fort Greely. Copies of these documents are available upon request. Interested parties are invited to submit, in writing, any comments or objections they may have concerning the proposed action. Comments received will be reviewed and relevant issues will be addressed and incorporated into a revised EA. If no comments are received during the Public Comment Period, the original EA will become the final EA document. **For further information, please contact Chuck Canterbury, Media Relations Officer, United States Army Alaska (USARAK), Public Affairs Office, Fort Richardson, Alaska 99505-5900, telephone: (907) 384-2113.**

SUPPLEMENTAL INFORMATION: An EA is prepared to determine the extent of environmental impacts of a proposed action and decides whether or not these impacts are significant. If the proposed action may or will result in significant impacts, an EIS is prepared to provide additional information on the context, duration, and intensity of the impacts. If an EA shows that the proposed action will not result in significant impacts, a FONSI is prepared and NEPA compliance is satisfied. A FONSI is a document that briefly presents the reasons why a proposed action will not have a significant effect on the quality of the human environment.

The FONSI documents the decision that an EIS is not required for NEPA compliance. A FONSI is completed when no comment period is necessary; a comment period was held but evidenced no significant public concern; or public concern resulted in reconsideration of the FONSI, which was still appropriate upon re-examination.

APPENDIX 2-4

MEMORANDUM of UNDERSTANDING
CONCERNING THE
MANAGEMENT OF CERTAIN PUBLIC LANDS
WITHDRAWN FOR MILITARY USE

MEMORANDUM OF UNDERSTANDING
between the
BUREAU OF LAND MANAGEMENT
and the
UNITED STATES ARMY ALASKA
concerning the
MANAGEMENT OF CERTAIN PUBLIC LANDS
WITHDRAWN FOR MILITARY USE

I. PURPOSE

This Memorandum of Understanding, developed and entered into by the Bureau of Land Management's Alaska State Office (BLM) and the United States Army Alaska (USARAK) establishes cooperative efforts for the management of public lands withdrawn for military use in accordance with the Military Lands Withdrawal Act of 1986 (Public Law 99-606). It implements the Fort Greely Resource Management Plan and the Fort Wainwright Yukon Maneuver Area Resource Management Plan (the RMPs).

II. OBJECTIVE

The Military Lands Withdrawal Act of 1986 authorized the re-withdrawal of certain public lands in Alaska for continued military use as parts of Fort Greely and Fort Wainwright. The Act required the Secretary of the Interior to manage the lands pursuant to the Federal Land Policy and Management Act of 1976 and other applicable laws. Pursuant to the Act, BLM and USARAK developed plans for the management of natural resources on the withdrawn lands and enter into this Memorandum of Understanding (MOU) to implement those plans.

This MOU outlines the procedures with which USARAK and BLM will implement the plans. This management is to be consistent with applicable law, subject to such conditions and restrictions necessary to permit the military use of such lands, and provide for proper management and protection of the resources and values of such lands, including protection of wildlife and wildlife habitat, recreation, and fire prevention and suppression of fires.

Through this MOU, USARAK and BLM will fulfill the mandate of the Military Lands Withdrawal Act of 1986 to implement plans for the two withdrawals. This MOU clearly defines the roles and responsibilities of the two agencies to efficiently and effectively manage the nonmilitary uses and natural resources of these withdrawn lands.

III. AUTHORITY

A. Military Lands Withdrawal Act of 1986 (P.L. 99-606)

B. Federal Land Policy and Management Act of 1976 (P.L. 94-579), as amended

C. National Environmental Policy Act of 1969 (P.L. 91-190), as amended (NEPA)

D. Sikes Act (P.L. 86-797), as amended

IV. DEFINITION

Nonmilitary use: All human use of the land or natural resources of these withdrawn lands that is not connected in any way to the military mission.

Military use: Any use of the land or natural resources connected in some way to the present or future military mission.

V. RESPONSIBILITIES AND PROCEDURES

A. Implementation of the Fort Greely Resource Management Plan and the Fort Wainwright Yukon Maneuver Area Resource Management Plan

USARAK and BLM agree to implement both RMPs. In furtherance of these plans, USARAK and BLM will, at a minimum, jointly develop and maintain the following activity plans as personnel and budgetary allocations permit. The activity plans will describe in greater detail than the RMPs the management steps to be undertaken to fulfill the decisions of the RMPs. All plans will be designed to meet applicable BLM and Army regulations and directives.

1. Habitat Management Plans (both forts)
2. Cultural Resources Management Plans (both forts)
3. Forest Management Plans (both forts)
4. Recreation Activity Management Plan (Fort Greely only)
5. Fire Management Plans (both forts)

B. Nonmilitary Activities

1. All nonmilitary use of these withdrawn lands shall be subject to such conditions and restrictions as may be necessary to permit the continued and future military use of such lands. Any use authorized by BLM will have USARAK concurrence so that military use of the land is not hindered.

2. BLM or the proponent shall prepare environmental documentation for nonmilitary activities on these withdrawn lands following a preliminary consultation with USARAK. BLM shall coordinate all NEPA documents, formal consultations,

and permits with USARAK, providing opportunity to comment, during each stage of the authorization process. USARAK shall comment in writing. BLM will provide USARAK copies of all final NEPA and authorization documents.

3. BLM may issue use authorizations or resource sales only with the concurrence of USARAK. USARAK will grant or deny concurrence in writing. USARAK will respond to a request for project review and concurrence within 30 calendar days, except that extensions of time may be requested for cause. Generally, actions which can be approved locally will be returned within the allotted time; however, for any actions which require approval at higher headquarters (outside Alaska), an additional 30-60 days will be required. USARAK may attach stipulations designed to protect military present and future use of the land to any concurrence for nonmilitary use. Such stipulations, however, shall not be used as a de facto means of denying nonmilitary use. USARAK's concurrence may be withdrawn for cause.

C. Military Activities

1. USARAK or the proponent of military activities shall prepare environmental documentation for military activities on these withdrawn lands in accordance with 32 CFR 651. This environmental documentation should address impacts of the proposed military activities on the decisions and resources addressed in the RMP and the associated activity plans. USARAK shall coordinate all NEPA documents, formal consultations, and permits with BLM, providing opportunity to comment, as appropriate. BLM shall comment in writing. USARAK will provide BLM copies of all final NEPA and authorization documents.

2. USARAK shall promptly notify BLM in the event that these withdrawn lands will be used for defense-related purposes other than those specified in Section 1 of the Military Lands Withdrawal Act of 1986 (Sec. 3(f)). Such notification must indicate the additional uses involved, the proposed duration of such uses and any proposed restrictions to be imposed on otherwise permitted non-military uses of the withdrawn lands.

D. Access

1. The military's need for secure and safe training areas dictates that USARAK has responsibility for controlling access to these withdrawn land. In the exercise of these responsibilities and in conformance with decisions reached in the resource management plans, USARAK:

a. will maintain signs at all major road and trail entrances to the withdrawn lands identifying the property and the requirements for entering,
b. will maintain signs warning the public and prevent access into impact areas and other restricted areas,
c. may allow specific nonmilitary uses and users into closed areas as appropriate,

Fort Greely and Fort Wainwright (YMA) MOU

d. will close potentially dangerous lands in addition to those described in the RMPs, if any are created or discovered,
e. may close a buffer zone around impact areas during times of use,
f. may close any area of the withdrawals in accordance with Sec. 3(b), PL 99-606,
g. may restrict vehicle use more than described in the resource management plans, if required to preclude conflicts with the military's mission, and
h. will remediate the two Nike battery sites in the Yukon Maneuver Area as funding is made available to eliminate potential human health risks.

2. BLM, in coordination with USARAK, may impose greater restrictions on nonmilitary vehicle use than described in the RMPs as necessary to protect the environment.

3. BLM and USARAK, through mutual consent, may lift restrictions on vehicle use described in the RMPs.

4. All trespass constitutes an infringement upon the military mission and is subject to BLM and USARAK law enforcement activities. In cases in which the action of the trespasser, if otherwise undertaken pursuant to valid permit or other authorization, would require the payment of rentals, fees, or appraised value, USARAK will coordinate law enforcement activities with BLM. Recovery of damages or lost revenue shall be carried out by BLM, but shall in no way inhibit or delay USARAK's abatement activity.

E. Sharing Inventory, Monitoring, and Other Studies

USARAK and BLM will coordinate with each other prior to initiating inventory, monitoring, or similar studies of natural resources related to these withdrawn lands. These agencies will share data and reports resulting from such studies. Studies or projects initiated by agencies other than USARAK shall be approved by USARAK and BLM prior to conduct.

F. Fire Management

Fire management will be conducted in accordance with the RMPs and the Interagency Fire Management Plan.

G. Coordination

BLM and USARAK will meet at the staff level as needed regarding management of these lands and the terms of this MOU.

Fort Greely and Fort Wainwright (YMA) MOU

H. Cost Reimbursement

Cost reimbursement can only be initiated after all requirements are coordinated and documented with installation- or action-specific agreements. This MOU does not modify or supercede any existing agreements.

VI. ADMINISTRATION

A. Nothing in this MOU shall be construed as obligating USARAK or BLM to expend funds in excess of appropriations authorized by law.

B. USARAK and BLM agree to the following measures to coordinate implementation and resolve disputes regarding this MOU and the RMPs:

1. The primary USARAK point of contact will be the local Natural Resources Manager (currently located within the Directorate of Public Works, Environmental Resources Department). The Natural Resources Manager will coordinate actions through the appropriate military chain of command for approval or concurrence.
2. The primary BLM point of contact will be the Steese/White Mountains District Resource Division Supervisor. The Resource Division Supervisor will coordinate actions through the appropriate BLM chain of command for approval or concurrence.
3. The second level for project coordination and dispute resolution shall be:
   a. USARAK--Director of Public Works, Fort Richardson, Alaska.
   b. BLM--District Manager, Steese/White Mountains District.
4. The above named points of contact may be changed by giving written notification.
5. The third level of project coordination and dispute resolution shall be:
   a. USARAK--USARAK Commander
   b. BLM--Alaska State Director
6. USARAK and BLM may enter into supplemental agreements where necessary to specify interrelationships in detail or for specific projects or activities. Any supplemental agreement will be in accordance with this MOU and the Military Lands Withdrawal Act of 1986.

C. USARAK and BLM will review this MOU at least every 3 years to determine its adequacy, effectiveness, and need for updating.

D. The terms of this MOU may be renegotiated at any time at the request of either signatory, following 30 days notice to the other party.

E. Either party may propose changes to this MOU during its term. Such changes will be in the form of an amendment and will become effective upon signature by

both parties. Such amendments may be signed by the signatory or that person's successor or designee.

F. This MOU will expire November 6, 2001, unless cancelled, extended, or renewed.

G. This MOU will become effective upon signature by the BLM and USARAK.

APPROVED:

Thomas H. Needham

THOMAS H. NEEDHAM
Major General, U.S. Army
Commanding

26 MAY 94
Date

Tom Allen

TOM ALLEN
State Director, Alaska State Office
Bureau of Land Management

6/26/95
Date

Fort Greely and Fort Wainwright (YMA) MOU

APPENDIX 5-3a

Specific Items of Cooperation Between the Bureau of Land Management, U.S. Fish and Wildlife Service, Alaska Department of Fish and Game, and U.S. Army Alaska

PURPOSE: The purpose of this document is to list specific items to be provided by the Alaska Department of Fish and Game (ADF&G), U.S. Fish and Wildlife Service (USFWS), Bureau of Land Management (BLM), and U.S. Army Alaska (USARAK) for cooperative implementation of the Fort Wainwright Integrated Natural Resources Management Plan. Items not specifically listed will generally be the responsibility of USARAK unless the other agencies agree to assist with their implementation.

AUTHORITY: In accordance with the authority contained in Public Land Order 99-606, Title 10, U.S. Code, Section 2671, and Title 16, U.S. Code, Section 670 the Department of Defense, the Department of Interior, and the State of Alaska, through their duly designated representatives whose signatures appear on the Fort Wainwright Integrated Natural Resources Management Plan, specifically approve the Integrated Natural Resources Management Plan and the below items of cooperation.

MUTUAL AGREEMENT:

- Persons hunting or fishing the lands or waters of Fort Wainwright shall be required to obtain special Fort Wainwright hunting trapping, or fishing licenses unless exempt by USARAK regulations. At present, there is no cost for these licenses, but USARAK reserves the right to charge for these licenses in the future. Any funds derived from the sale of these licenses would be used exclusively for the implementation of the Fort Wainwright Integrated Natural Resources Plan in accordance with Army regulations and the Sikes Act. Fees charged would be established by the installation in accordance with Army regulations. Persons guilty of violating the requirement for these special licenses may be prosecuted under 10 USC 2671(c).

- Persons hunting, trapping, or fishing the lands of Fort Wainwright must purchase state licenses, tags, and stamps as required by ADF&G, unless exempt by ADF&G regulations. Military personnel on active duty and permanently stationed in Alaska may purchase special fishing and small game licenses at resident prices. Active duty military personnel, not including dependents, may hunt big game without licenses or tags on military lands open to hunting providing they follow ADF&G hunting regulations. A harvest ticket is required. Nonresident military hunters (lived in Alaska less than 12 months) stationed in Alaska must purchase nonresident hunting licenses and appropriate big game tags to hunt big game, but the tags will only cost one-half the normal nonresident price.

- A Federal waterfowl stamp is required for hunting waterfowl on Fort Wainwright as prescribed by Federal laws.

- All hunting, fishing, and trapping on Fort Wainwright will be in accordance with federal and state fish and game laws.

- Representatives of ADF&G, BLM, and USFWS will be admitted to the installation at reasonable times, subject to requirements of military necessity and security. Such personnel may use U.S. Army transportation on a nonreimbursable basis, to include aircraft, for wildlife related functions on Fort Wainwright provided such transportation is available without detriment to the military mission.

- ADF&G, BLM, and USFWS shall furnish technical assistance for development and implementation of professionally sound natural resources programs on Fort Wainwright, provided funding for such support is available.

- USARAK shall furnish assistance and facilities to ADF&G, BLM, and/or USFWS for mutually agreed upon natural resources research projects.
- No exotic species of fish or wildlife will be introduced on Fort Wainwright lands without prior written approval of the Army, BLM, ADF&G, and the USFWS.
- The State of Alaska shall establish season and bag limits for harvest of game species on Fort Wainwright.
- Hunting, trapping, and fishing on Fort Wainwright will be authorized and controlled by the installation commander in accordance with locally published installation regulations promulgated in compliance with applicable Federal and State laws, Army regulations, military requirements, and the Integrated Natural Resources Management Plan.
- USARAK will operate biological check stations to collect moose data required by ADF&G and USARAK. ADF&G may collect additional data on fish or wildlife resources at Fort Wainwright with approval of USARAK for access to training lands
- Public access for hunting, trapping, and fishing is approved under a system of controls established by USARAK in cooperation with ADF&G. Civilians will be considered on an equal basis with military and Army civilian employees for permits and access to Fort Wainwright. Hunting, trapping, and fishing will be allowed only on those areas where there is no conflict with military training activities and no unreasonable safety hazard to participants, military personnel and dependents, or Army civilian employees. Certain areas will be closed to hunting and fishing, including, but not limited to impact areas containing unexploded ordnance and training areas with sensitive electronic equipment. Such areas will be marked as closed on installation hunting maps.
- USARAK agrees that persons using PL 99-606 or PL 2676 withdrawn lands for commercial purposes must have BLM permits in addition to Army approval.
- ADF&G agrees to continue to stock Fort Wainwright lakes. ADF&G will determine the number and species of fish to be stocked based on angler use trends and fish availability.
- It is understood that implementation of this INRMP requires certain latitude with regard to professional decisions. However, USARAK agrees that any land use change which significantly impacts natural resources must include modification of this INRMP in addition to any other environmental compliance requirements.
- USARAK has the option to directly transfer funds to the ADF&G, USFWS, or BLM, for implementation of this Integrated Natural Resources Management Plan.

When USARAK chooses the option to directly transfer funds to ADF&G, USFWS, or BLM, USARAK agrees:

1. To develop a scope of work for each project to be accomplished under this agreement.
2. To issue a delivery order or MIPR, executed by a USARAK contracting officer or budget officer, obligating funds to accomplish the agreed-upon scope of work at an agreed-upon price.
3. To reimburse ADF&G, USFWS or BLM for any supplies, equipment, travel and personnel services (including salary, benefits, sick and annual leave accrual), direct administrative cost for project procurement, logistical arrangements (travel, housing, utilities, vehicles, conferences, workshops and project reviews), human resources (job searches, processing of employment forms, project-specific personnel issues, time sheets, hourly employees and leave reports), project reports (editing, graphics,

publication), program management, and overhead cost not to exceed 10%, consistent with OMB Circular A-21.

ADF&G, USFWS and BLM agree:

1. To provide technical assistance through employees or qualified agents who have the expertise necessary to carry out the purpose of this agreement.

2. To enter into consulting agreements or subcontracts with other qualified agents who have the expertise to assist in the execution of this agreement.

3. To purchase equipment, software, and materials and provide maintenance and repair of equipment that is required to carry out the purpose of this agreement. The equipment purchased under this agreement will be used to satisfy the objectives of this agreement. USARAK will reimburse ADF&G, USFWS or BLM for the purchase price of required equipment and materials and cost of the maintenance and repair of said equipment necessary for project completion. Equipment and material over $1000.00 purchased under this agreement shall become property of USARAK at the completion of work undertaken pursuant to this agreement.

4. To bill USARAK quarterly on a reimbursable basis for costs as provided under the terms of this agreement and individual delivery order or MIPR. Billing statements should be addressed to:

   Directorate of Public Works
   730 Quartermaster Road
   ATTN: APVR-RPW-EV (Johnson)
   Fort Richardson, Alaska 99505-6500

LIMITATIONS:

The military mission of Fort Wainwright supersedes natural resources management and associated recreational activities; and, such activities must in all instances be compatible with the military mission. However, where there is conflict between the military mission and provisions of the Endangered Species Act, the Sikes Act, or any other law associated with natural resources conservation, such conflicts will be resolved according to statutory requirements.

REQUIRED REFERENCES:

- Nothing contained in this agreement shall modify any rights granted by treaty to any Native Alaskans or Indian tribe or to members thereof.

- The possession of a special permit for hunting migratory game birds will not relieve the permittees of the requirements of the Migratory Bird Stamp Act, as amended.

- This INRMP is a Federal Facilities Compliance Agreement.

- As required by the Sikes Act, the following agreements are made:

  1. This Fort Wainwright Integrated Natural Resources Management Plan is the planning document required by the Sikes Act, as amended. This Plan contains those items specifically required by law. In the event the Sikes Act is amended after this INRMP is signed, this plan will be amended to conform with the new requirements within the Sikes Act if needed.

  2. This plan will be reviewed by ADF&G, BLM, USFWS, and USARAK on a regular basis, but not less often than every 5 years.

  3. No land or forest products from land on Fort Wainwright will be sold under Section 2665 (a) or (b), Title 10 USC and no land will be leased on Fort Wainwright under Section 2667 of such Title

10 unless the effects of such sales or leases are compatible with the purposes of the Integrated Natural Resources Management Plan.

4. With regard to the implementation and enforcement of the Fort Wainwright Integrated Natural Resources Management Plan, neither Office of Management and Budget Circular A-76 nor any successor circular thereto applies to the procurement of services that are necessary for that implementation and enforcement, and priority shall be given to the entering into of contracts for the procurement of such implementation and enforcement services with Federal and State agencies having responsibility for the conservation or management of fish or wildlife.

5. The Fort Wainwright Integrated Natural Resources Management Plan is not, nor will be treated as, a cooperative agreement to which chapter 63 of title 31, United States Code applies.

6. This Integrated Natural Resources Management Plan will become effective upon the date subscribed by the last signature and shall continue in full force for a period of five years or until terminated by written notice to the other parties by any of the parties signing this agreement. This agreement may be amended or revised by agreement between the parties hereto. Action to amend or revise may originate with any of the other participating agencies.

7. USARAK, ADF&G, and the USFWS enter into this agreement based on the requirements and opportunities within the Sikes Act, as amended. These three parties are aware that the BLM is also a signatory partner to this Integrated Natural Resources Management Plan.

Both parties agree:

- That each party will assign a project officer to execute this agreement and that a meeting between the assigned project officers or their designated representatives shall take place at least twice a year. The first meeting shall be no later than March 15 of each year to determine the project priorities and funding required for the next federal fiscal year. The second meeting shall occur no later than October 15 of each year to finalize project goals and funding for that federal fiscal year. Other meetings will be held as requested by either party. It is understood by both parties that available funding is not guaranteed and that no work can be started until funding has been sent. An annual operating plan to be formulated by the parties' assigned project officers or designated representatives will be submitted to the Chief, USARAK Environmental Resources Department, and to Palmer SWCD not later than March 30 of each year for funding during the next federal fiscal year.

- That USARAK will have final authority to prioritize projects.

- That Palmer SWCD personnel may attend applicable training sessions, meetings, and conferences on a space and funds available basis.

- That the Comptroller General of the United States, the USARAK contracting officer, or their duly appointed representatives, or cognizant audit agency shall have access to all directly pertinent books, documents, papers, and records relating to USARAK's and Palmer SWCD's engagement in the performance of duties or involving any transactions relative to this agreement.

- It is the expectation of the parties that all obligations of USARAK under this agreement will be fully funded. Any requirement for the payment or obligation of funds by USARAK under the terms of this agreement shall be subject to the availability of funds. No provision herein shall be interpreted to require obligation of payment of funds in violation of any statute.

APPENDIX 8-2

Confirmed Fauna of Fort Wainwright[27]

Mammals

Scientific Name	Common Name	Habitat
Microtus miurus	Alaska (singing) vole	slopes
Microtus pennsylvanicus	meadow vole	meadow
Microtus oeconomus	tundra vole	alpine
Microtus xanthognathus	yellow-cheeked vole	spruce forests
Clethrionomys rutilus	redback tundra vole	alpine, forest
Lemmus trimucronatus	brown lemming	alpine
Synaptomys borealis	northern bog lemming	wet alpine tundra, muskeg
Peromyscus maniculatus	deer mouse	dry forest, grassland
Zapus hudsonicus	meadow jumping mouse	
Sorex hoyi	pygmy shrew	forest, grassland
Sorex monticulus	dusky shrew	muskeg, forest
Sorex cinereus	masked shrew	subalpine
Sorex arcticus	tundra shrew	tamarack and spruce swamps
Myotis lucifugus	little brown bat	wooded areas, abandoned buildings
Mustela erminea	shorttail weasel (ermine)	forest, brush
Mustela frenata	longtail weasel	
Mustela nivalis	least weasel	brush
Mustela vison	mink	near water
Marmota caligata	hoary marmot	alpine
Marmota monax	woodchuck	
Lutra canadensis	river otter	near water
Lepus americanus	snowshoe hare	forest, brush
Ondatra zibethicus	muskrat	near water, marsh
Spermophilus parryii	Arctic ground squirrel	alpine
Erethizon dorsatum	porcupine	coniferous forest
Tamiasciurus hudsonicus	red squirrel	spruce forest
Glaucomys sabrinus	northern flying squirrel	some in nest boxes
Castor canadensis	beaver	streams
Martes americana	marten	spruce forest
Gulo gulo	wolverine	subalpine, forest
Ursus arctos	brown (grizzly) bear	alpine, subalpine
Ursus americanus	black bear	forests
Canis latrans	coyote	ubiquitous
Canis lupus	gray wolf	alpine, forest, muskeg
Vulpes vulpes	red fox	ubiquitous
Lynx canadensis	lynx	forest, muskeg
Rangifer tarandus	barren ground caribou	tundra, open forest
Alces alces	moose	brush, forest

Sources: Bonito (1980), U.S. Army (1981), Von Rueden (1994)

[27]Includes Eielson AFB

Fish

Scientific Name	Common Name
Lampetra japonica	Arctic lamprey
Stenodus leucichthys nelma	sheefish
Coregonus pidschian	humpback whitefish
Prosopium cylindraceum	round whitefish
Oncorhynchus keta	chum salmon
Oncorhynchus kisutch	coho (silver) salmon
Oncorhynchus tshawytscha	chinook (king) salmon
Oncorhyncus mykiss	rainbow trout (stocked)
Esox lucius	northern pike
Couesius plumbeus	lake chub
Catostomus catostomus	longnose sucker
Lota lota	burbot
Cottus cognatus	slimy sculpin
Thymallus arcticus	Arctic grayling
Coregonus sardinella	least cisco
Salvelinus alpinus	Arctic char

Sources: Bonito (1980), U.S. Army (1981), Von Rueden (1994)

Amphibians and Reptiles

Scientific Name	Common Name	Habitat
Rana sylvatica	wood frog	bogs, lakes, marshes

Source: Von Rueden (1994)

Birds

Scientific Name	Common Name
Loons, Grebes, Pelicans	
Gavia immer	common loon
Gavia arctica	Arctic loon
Gavia stellata	red-throated loon
Gavia pacifica	Pacific loon
Podiceps grisegena	red-necked grebe
Podiceps auritus	horned grebe
WATERFOWL	
Olor columbianus	whistling swan
Cygnus buccinator	trumpeter swan
Cygnus columbianus	tundra swan
Anser albifrons	greater white-fronted goose
Chen caerulescens	snow/blue goose
Branta canadensis	Canada goose
Branta bernicla nigricans	black brant
Anas platyrhynchos	mallard

Anas strepera	gadwall
Anas crecca	green-winged teal
Anas americana	American wigeon
Anas acuta	northern pintail
Anas clypeata	northern shoveler
Anas discors	blue-winged teal
Aythya americana	redhead
Aythya valisineria	canvasback
Aythya collaris	ring-necked duck
Aythya marila	greater scaup
Aythya affinis	lesser scaup
Bucephala islandica	Barrows goldeneye
Bucephala clangula	common goldeneye
Bucephala albeola	bufflehead
Mergus merganser	common merganser
Mergus serrator	red-breasted merganser
Clangula hyemalis	oldsquaw
Histrionicus histrionicus	Harlequin duck
Melanitta fusca	common scoter
Melanitta deglandi	white-winged scoter
Melanitta perspicillata	surf scoter

VULTURES, HAWKS, AND FALCONS

Haliaeetus leucocephalus	bald eagle
Aquila chrysaetus	golden eagle
Circus cyaneus	northern harrier
Falco rusticolus	gyrfalcon
Falco peregrinus	peregrine falcon
Falco columbarius	merlin
Falco sparverius	American kestrel
Buteo jamaicensis	red-tailed hawk
Buteo lagopus	rough-legged hawk
Buteo swainsoni	Swainson’s hawk
Buteo jamaicensis harlani	Harlan’s hawk
Accipter striatus	sharp-shinned hawk
Accipter gentilis	northern goshawk
Pandion haliaetus	osprey

OWLS

Asio flammeus	short-eared owl
Bubo virginianus	great horned owl
Strix nebulosa	great gray owl
Surnia ulula	(northern) hawk owl
Nyctea scandiaca	snowy owl
Aegolius funereus	boreal owl

GALLINACEOUS BIRDS

Lagopus lagopus	willow ptarmigan
Lagopus mutus	rock ptarmigan
Lagopus leucurus	white-tailed ptarmigan
Dendragopus canadensis	spruce grouse
Bonasa umbellus	ruffed grouse
Pedioecetes phasianellus	sharp-tailed grouse

SHOREBIRDS

Grus canadensis	sandhill crane
Fulica americana	American coot
Charadrius semipalmatus	semipalmated plover
Charadrius vociferus	killdeer
Pluvialis squatarola	black-bellied plover
Pluvialis dominica	American golden plover
Numenius phaeopus	whimbrel
Bartramia longicauda	upland plover
Tringa flavipes	lesser yellowlegs
Tringa melanoleuca	greater yellowlegs
Tringa solitaria	solitary sandpiper
Heteroscelus incanus	wandering tattler
Actitis macularia	spotted sandpiper
Phalaropus lobatus	northern phalarope
Stercorarius longicaudus	long-tailed jaeger
Limnodromus scolopaceus	long-billed dowitcher
Gallinago gallinago	common snipe
Aphriza virgata	surfbird
Calidris pusilla	semipalmated sandpiper
Calidris mauri	western sandpiper
Calidris minutilla	least sandpiper
Calidris alpina	dunlin
Calidris alba	sanderling

GULLS AND TERNS

Larus argentatus	herring gull
Larus canus	mew gull
Larus philadelphia	Bonapart's gull
Sterna paradisaea	Arctic tern

DOVES

Columba livia	rock dove

HUMMINGBIRDS

Selasphorus rufus	rufous hummingbird

KINGFISHER

Ceryle alcyon	belted kingfisher

WOODPECKERS

Picoides villosus	hairy woodpecker
Picoides tridactylus	three-toed woodpecker
Colaptes auratus cafer	northern flicker
Colaptes auratus auratus	yellow-shafted flicker
Picoides arcticus	black-backed woodpecker
Picoides pubescens	downy woodpecker

PERCHING BIRDS

Sayornis phoebe	Say's phoebe
Empidonax alnorum	alder flycatcher
Empidonax traillii	Traill's (willow) flycatcher
Contopus cooperi	olive-sided flycatcher
Contopus sordidulus	western (weed) pewee
Eremophila alpestris	horned lark
Tachycineta bicolor	tree swallow
Tachycineta thalassina	violet-green swallow
Riparia riparia	bank swallow
Hirundo pyrrhonota	cliff swallow
Hirundo rustica	barn swallow
Corvus corax	common northern raven
Perisoreus canadensis	gray jay
Pica pica	black-billed magpie
Parus atricapillus	black-capped chickadee
Parus hudsonicus	boreal chickadee
Parus cinctus	gray-headed chickadee
Certhia americana	brown creeper
Cinclus mexicanus	American dipper
Turdus migratorius	American robin
Ixoreus naevius	varied thrush
Catharus guttata	hermit thrush
Catharus ustulatus	Swainson's thrush
Catharus minimus	gray-cheeked thrush
Myadestes townsendi	Townsend's solitaire
Oenanthe oenanthe	northern wheatear
Regulus calendula	ruby-crowned kinglet
Phylloscopus borealis	Arctic warbler
Anthus spinoletts	American pipit
Phalaropus lobatus	red-necked philarope
Bombycilla garrulus	bohemian waxwing
Lanius excubitor	northern shrike
Vermivora celata	orange-crowned warbler
Dendroica petechia	yellow warbler

Dendroica coronata	yellow-rumped warbler
Dendroica striata	blackpoll warbler
Seiurus noveboracensis	northern waterthrush
Wilsonia pusilla	Wilson's warbler
Euphagus carolinus	rusty blackbird
Pinicola enucleator	pine grosbeak
Leucosticte arctoa	rosy finch
Leucosticte tephrocotis	gray-crowned rosy finch
Carduelis hornemanni	hoary redpoll
Acanthis flammea	common redpoll
Carduelis pinus	pine siskin
Loxia leucoptera	white-winged crossbill
Junco hyemalis	dark-eyed (slate-colored) junco
Passerculus sandwichensis	savanna sparrow
Melospiza melodia	song sparrow
Spizella passerina	chipping sparrow
Melospiza lincolnii	Lincoln's sparrow
Calcarius lapponicus	lapland sparrow, lapland longspur
Calcarius pictus	Smith's longspur
Plectrophenax nivalis	snow bunting
Zonotrichia leucophrys	white-crowned sparrow
Regulus satropa	golden-crowned kinglet
Spizella arborea	American tree sparrow
Passerella iliaca	fox sparrow
Zonotrichia atricapilla	golden-crowned sparrow
Dendroica coronata	yellow-rumped warbler
Dendroica townsendii	Townsend's warbler

Sources: Breeding Bird Survey forms (Fort Wainwright), Bonito (1980), U.S. Army (1981), Von Rueden (1994)

APPENDIX 9-8a
Game and Furbearer Harvest Data

Table 1: Estimated Hunter Harvest, Von Reuden and Kerns, 1991*

Species	Birch Hill	TFTA	YTA	Eielson AFB	Total
Moose	1	82	72	1**	156
Black Bear	0	2	2	***	4
Grizzly Bear	0	0	1	***	1
Grouse	123	20	1,270	382	1,795
Ptarmigan	21	0	156	21	198
Hare	262	9	874	366	1,511
Squirrel	40	1	258	110	409
Duck	72	178	176	527	953
Goose	2	2	0	13	17

* Harvest corrected for proportion of hunter harvest reports not returned.

** Moose season on Eielson AFB is restricted to archery only.

*** Bear hunting not allowed in 1991 and 1992; 1993-1997 allowed only in the Chena River Annex.

Table 2: Estimated Hunter Harvest, Von Reuden and Kerns, 1992*

Species	Birch Hill	TFTA	YTA	Eielson AFB	Total
Moose	0	39	35	0**	74
Black Bear	0	5	2	***	7
Grizzly Bear	0	2	1	***	3
Grouse	111	44	511	273	939
Ptarmigan	0	1	214	24	239
Hare	83	7	420	98	608
Squirrel	21	0	166	34	221
Duck	35	246	98	768	1,147
Goose	0	0	0	12	12

* Harvest corrected for proportion of hunter harvest reports not returned.

** Moose season on Eielson AFB is restricted to archery only.

*** Bear hunting not allowed in 1991 and 1992; 1993-1997 allowed only in the Chena River Annex.

Table 3: Estimated Hunter Harvest, Von Reuden and Kerns, 1993*

Species	Birch Hill	TFTA	YTA	Eielson AFB	Total
Moose	2	144	77	2**	225
Black Bear	0	11	4	0***	15
Grizzly Bear	0	0	1	0***	1
Fox	2	2	2	0	6
Grouse	268	88	889	460	1,705
Ptarmigan	47	20	100	34	201
Hare	116	0	121	12	249
Squirrel	216	14	443	221	894
Duck	181	132	79	615	1,007
Goose	0	0	0	14	14

* Harvest corrected for proportion of hunter harvest reports not returned.

** Moose season on Eielson AFB is restricted to archery only.

*** Bear hunting not allowed in 1991 and 1992; 1993-1997 allowed only in the Chena River Annex.

Table 4: Estimated Hunter Harvest, Von Reuden and Bruce, 1994*

Species	Birch Hill	TFTA	YTA	Eielson AFB	Total
Moose	3	132	42	3**	180
Black Bear	0	3	4	0***	7
Grizzly Bear	0	0	0	0***	0
Fox	5	0	0	0	5
Grouse	442	149	1,828	845	3,264
Ptarmigan	6	0	169	31	206
Hare	23	0	37	29	89
Squirrel	79	37	533	343	992
Duck	118	122	79	809	1,128
Goose	0	4	3	12	19

* Harvest corrected for proportion of hunter harvest reports not returned.

** Moose season on Eielson AFB is restricted to archery only.

*** Bear hunting not allowed in 1991 and 1992; 1993-1997 allowed only in the Chena River Annex.

Table 5: Estimated Hunter Harvest, Von Rueden and Bruce, 1995*

Species	Birch Hill	TFTA	YTA	Eielson AFB	Total
Moose	4	115	60	5**	184
Black Bear	0	8	6	1***	15
Grizzly Bear	0	0	2	0***	2
Fox	5	0	2	0	7
Grouse	304	265	3,360	1,325	5,254
Ptarmigan	1	1	261	40	303
Hare	21	4	137	126	288
Squirrel	69	4	187	118	378
Duck	43	79	112	897	1,131
Goose	0	0	0	11	11

* Harvest corrected for proportion of hunter harvest reports not returned.

** Moose season on Eielson AFB is restricted to archery only.

*** Bear hunting not allowed in 1991 and 1992; 1993-1997 allowed only in the Chena River Annex.

Table 6: Estimated Hunter Harvest, Von Reuden and Bruce, 1996*

Species	Birch Hill	TFTA	YTA	Eielson AFB	Total
Moose	2	179	47	1**	229
Black Bear	0	23	13	0***	36
Grizzly Bear	0	0	1	0***	1
Fox	1	0	2	0	3
Grouse	333	199	2,467	1,515	4,514
Ptarmigan	7	30	283	68	388
Hare	51	5	419	329	804
Squirrel	89	63	621	267	1,040
Duck	58	92	166	918	1234
Goose	1	0	2	23	26

* Harvest corrected for proportion of hunter harvest reports not returned.

** Moose season on Eielson AFB is restricted to archery only.

*** Bear hunting not allowed in 1991 and 1992; 1993-1997 allowed only in the Chena River Annex.

Table 7: Estimated Hunter Harvest, Von Reuden and Bruce, 1997*

Species	Birch Hill	TFTA	YTA	Eielson AFB	Total
Moose	8	194	46	3**	251
Black Bear	0	21	12	0***	33
Grizzly Bear	0	0	0	0***	0
Fox	0	0	1	0	1
Grouse	385	230	2,639	1,252	4,506
Ptarmigan	2	35	376	265	678
Hare	283	90	563	341	1,277
Squirrel	141	37	320	275	773
Duck	30	180	84	1,062	1,356
Goose	0	19	0	30	49

* Harvest corrected for proportion of hunter harvest reports not returned.

** Moose season on Eielson AFB is restricted to archery only.

*** Bear hunting not allowed in 1991 and 1992; 1993-1997 allowed only in the Chena River Annex.

Table 8: Estimated Hunter Harvest, 1991-1997

Species	1991	1992	1993	1994	1995	1996	1997	Total
Moose	156	74	225	180	184	229	251	819
Black Bear	4	7	15	7	15	36	33	48
Grizzly Bear	1	3	1	0	2	1	0	7
Fox	0	0	6	5	7	3	1	18
Grouse	1,795	939	1,705	3,264	5,254	4,514	4,506	12,957
Ptarmigan	198	239	201	206	303	388	678	1,147
Hare	1,511	608	249	89	288	804	1,277	2,745
Squirrel	409	221	894	992	378	1,040	773	2,894
Duck	953	1,147	1,007	1,128	1,131	1,234	1,356	5,366
Goose	17	12	14	19	11	26	49	73

Table 9: Furbearer Harvest, 1991-1995

Species	1991-92*	1992-93*	1993-94	1994-95
Trappers**	18	16	20	22
Beaver	21	--	4	3
Otter	1	--	1	1
Mink	18	--	16	10
Marten	207	60	144	139
Wolverine	2	--	3	2
Coyote	4	5	2	9
Wolf	3	2	7	3
Fox	96	38	74	36
Lynx	55	31	16	21
Muskrat	--	1	--	3
Weasel	7	--	36	22
Hare	--	--	--	63

* Fort Wainwright and Eielson AFB combined.
** Permitees who did not trap are not included.

APPENDIX 14-8b

Fort Wainwright GIS Databases[28]

TRI-Service NAME	DESCRIPTION
NATRESOURCE	
famgtare	fauna_habitat (general_habitat_site)
flgenveg	flora_habitat (general_land_vegetation_area) not classified
flmgtfir	flora_management (fire_area)
gesursrv	geology_surface (survey_area)
getecflt	geology_tectonic (fault_line)
hysurwbd	hydrography_surface (surface_water_body_area)
hysurwcc	hydrography_surface (surface_water_course_centerline)
hysurwcs	hydrography_surface (surface_water_course_area)
hywetlnd	hydrography_wetland (wetland_area)
MASTERPLAN	
cantonment	cantonment area
cddodins	cadastre_dod_property (installation_area)
cdplstwn	cadastre_public_land_survey_system (township_area)
imfdcgag	improvement (water_surface_gaging_station)
trairsur	transportation_air (airfield_surface_area)
trvehrcl	transportation_vehicle (road_centerline)
utoilpip	utilities_oil_system (oil_line)
MILITARY	
mlsftsdz	military_safety (surface_danger_zone)
mltngdzn	military_training (drop_zone_area)
mltngfpt	military_training (firing point)
mltnglvf	military_training (live_fire_range_area [aka: firing fans])
mltngobs	military_training (observation_point)
mltngtrg	military_training (training_area)
mlairsua	military_air_operations (special_use_airspace)
ENVIRONMENTAL	
ehchagwm	environmental_hazard_char.(groundwater_quality_monitoring_station)
ehchaswm	environmental_hazard_char. (surface_water_quality_station)

[28] Database categories as outlined in the Tri-Service GIS/Spatial Data Standards

APPENDIX 20

Federal Laws, Regulations, Executive Orders, Directives, and Policies

Federal Laws

Americans with Disabilities Act of 1990 (PL 101-336; 42 USC 12101)

- Policy to ensure access, to the maximum extent possible, for persons with disabilities. Notes that wilderness areas are not included under this act. Some provisions are made maintaining historic structures.
- Penalties are enforced under 29 USC 794a dealing with citizen suits.

Antiquities Act of 1906 (PL 59-209; 16 USC 431-433)

- Policy providing for the preservation of historic and prehistoric sites on federal lands. Prohibits taking, excavation, or other destruction of sites.
- Penalties: Misdemeanor charges with fines up to $500 and/or 90 days imprisonment.

Archaeological and Historic (Data) Preservation Act Of 1974 (PL 93-291; 16 USC 469 *et seq.*) (AKA Archeological Recovery Act and Reservoir Salvage Act of 1960) (PL 86-523; 16 USC 469)

- Policy to protect and preserve any historic and archaeological data collected from sites which would otherwise be lost or destroyed as a result of any federally funded or licensed activity or program. Additionally, this act provides that up to one percent of project funds may be appropriated to conduct data recovery.
- No penalties are directly associated with this act.

Archaeological Resources Protection Act of 1979 (PL 96-95:16 USC 470aa-11)

- Policy to prohibit the sale, purchase, exchange, transport or receipt of any archeological resource if that resource was taken from public or Indian lands or in violation of state or local law. Vandalism, alteration, or destruction of historic and prehistoric sites are also covered under this act.
- Penalties - Criminal: Up to $20,000 and/or two years imprisonment, for first offense, $100,000 and/or five years imprisonment for second offense. Civil: Forfeiture of vehicles and equipment used in illegal activities. Forfeiture of illegally obtained artifacts.

Bald and Golden Eagle Protection Act of 1984 (16 USC 668-668d)

- This act prohibits the taking, possession, transaction, and transport of bald and golden eagles. Exemptions may be authorized by the Secretary of the Interior.
- Penalties - Criminal: Fines up to $5,000 and/or one year imprisonment Fines and prison terms doubled for second offense. Civil: Fines up to $5,000 per violation. Loss of federal lease rights, and confiscation of vehicles used in the violation of this law.

Clean Air Act (42 USC 7401-7642)

- Policy to prohibit, limit, and regulate the emission of dangerous and noxious pollutants into the environment.

- Penalties - Criminal: Up to $250,000 and/or five years imprisonment for first offense. $500,000 and/or 10 years imprisonment for second offense. Corporations are subject to fines up to $500,000 for first offense. Knowing endangerment is punishable by fine under Title 18 and/or 15 years imprisonment for an individual and $1,000,000 for a corporation. Penalties are doubled for second offenses.

Clean Water Act of 1977 (33 USC 1251-1387)

- This act stipulates effluent standards for the discharge of pollutants into navigable waters of the U.S. Promotes research at the federal and state levels concerning issues of water pollution.
- Penalties - Criminal: Negligent violations, fines up to $25,000 per day of violation and/or up to one year imprisonment. Doubled for repeat offenders. Knowledgeable violations, fines up to $50,000 per day of violation and/or up to three years imprisonment. Doubled for repeat offenders. Knowledgeable endangerment, fines up to $230,000 and/or up to 15-year imprisonment. If violator is an organization, fines up to $1,000.000. Doubled for repeat offenders. Civil: Accidental violation, fines up to $50,000. Willful violation, fines up to $250,000. Owners or operators of vessels or facilities may be liable for clean-up costs up to the amount of $30,000,000. Citizen Suits: Any citizen may bring suit against any person, the U.S. government, or governmental agency for violations of this act.

Coastal Zone Management Act (PL 92-583; 16 USC 1451 *et seq*.)

- Policy to preserve, protect, develop, restore, and enhance the nation's coastal zones. Provides funding opportunities to accomplish this goal. Establishes the Walter B. Jones excellence in coastal zone management awards. Also established the National Estuarine Research System.
- No penalties are directly associated with this act.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA and SARA) of 1980 (42 USC 9601-9675)

- Policy which defines liabilities for damage or destruction of the environment. The DOD can be held liable for releases damaging the environment. Limits on fines do not limit liabilities in regards to actual clean-up costs.
- Penalties - Civil fines up to $5 million for vessels carrying hazardous wastes ($50 million for an incineration vessel). Civil fines up to $30 million for a motor vehicle, aircraft, pipeline, or rolling stock, but no less than $5 million. Civil fines up to $50 million for any facility.

Conservation and Rehabilitation Program on Military and Public Lands (PL 93-452)

- Policy to set up and maintain conservation and rehabilitation programs on military and public lands. The goal is to preserve areas for natural resources. Provides funding and policy guidance for programs. Allows for imposing fines on individuals who violate regulations for land use. $1,000 for hunting and fishing without appropriate permit. $500 for violation of other regulations.

Conservation Programs on Military Installations (AKA Sikes Act) (PL 86-797; 16 USC 670 *et seq*.)

- Policy to develop land areas for habitat improvement and outdoor recreation. Allows for permitting of hunting and control of off-road vehicles. No fines on military reservations.

Emergency Planning and Community-Right-to-Know Act of 1986 (42 USC 11001-11050)

- Policy to inventory and report holdings of hazardous materials. Also, to report releases of hazardous materials within specified time frames. Some limitations on liability of governmental entities.

- Penalties - Criminal: $25,000 per day in violation, up to two years imprisonment. Civil: $25,000 per day in violation. Citizen Suits: Any citizen may bring suit against any person, the U.S. government, or governmental agency for violation of this act.

Emergency Wetlands Resources Act of 1986 (16 USC 3901-3932)

- This act is intended to promote the conservation of wetlands and to comply with international obligations of migratory bird treaties.
- No penalties arc associated with this act.

Endangered Species Act of 1973 (PL 93-205; 16 USC 1531-1543)

- Policy to protect any species (fish, wildlife, or plants) listed on the endangered species and the threatened species list from hunting, taking for importation, or exportation to or from the United States. Establishes the endangered and threatened species list.
- Penalties - Criminal: Fines up to $25,000 and/or one year imprisonment. Civil: Fines up to $10,000 for violation of this act. Forfeiture of any fish, wildlife, plants taken and equipment and vehicles used in violation of this act.

Environmental Quality Improvement Act of 1970 (42 USC 4371-4375)

- Establishes the Office of Environmental Quality. This office is tasked with the goal of enhancing environmental quality via research on negative human impacts on the environment. Also, responsible for coordinating various efforts of federal agencies engaged in minimizing the impact of their missions.
- No penalties are associated with this act.

Erosion Protection Act (33 USC 426e-426h)

- Provides funding mechanism for specific erosion protection projects. Each project must he approved by Congress, the Board on Coastal Engineering Research, or by the Chief of Engineers of the U.S. Army.
- No penalties are associated with is act.

Estuary Protection Act of 1968 (PL 90-454; 82 Stat 625; 16 USC 1221)

- Policy to protect, conserve, and restore the nation's valuable estuaries in a manner that adequately and reasonably maintains a balance between the national need for such protection of estuaries and the need for growth and development of these areas.
- No penalties are directly associated with this act.

Federal Facilities Compliance Act of 1992 (USC)

- This act amends the Resource Conservation and Recovery Act (RCRA, 42 USC 6961) so that the FFCA waives sovereign immunity in RCRA cases. The act allows the EPA Administrator to enforce RCRA provisions for violations by federal agencies. Requires annual inspections of federal facilities. All fees or fines assessed against any federal agency must be paid out of that agency's standard appropriation.
- No penalties are directly associated with this act.

Federal Insecticide, Fungicide and Rodenticide Act (7 USC 136-136y)

- Policy and relations pertaining to the usage of pesticides. Dealing mostly with applications, labeling, and banned products. Provides penalties for improper usage.
- Penalties - Criminal: Commercial - Fines up to $25,000 and/or one year imprisonment; Private - Fines up to $1000 and/or 30 days imprisonment. Civil: Commercial - Fines up to $5000; Private - Fines up to $1000.

Federal Land Policy and Management Act (43 USC 1701-1784)

- Policy regarding the management of federal lands.
- No penalties are directly associated with this act.

Federal Water Pollution Control Act (AKA Clean Water Act) (33 USC 1251-1376)

- Policy to protect U.S. water resources from pollution and to find ways to improve conditions. The act provides funding opportunities for research and development of water resources and sets standards and limits for effluent releases into water resources. Includes issues of dredge and fill, hazardous wastes, oil spills, etc.
- Penalties - Criminal: For individuals under negligence, fines range from $2500 - $25,000 per day of violation and/or one year imprisonment. Knowing violation fines range from $5000 - $50,000 per day of violation and/or three years imprisonment. Knowing endangerment fines are up to $250,000 and/or 15 years imprisonment. Fine and prison term are doubled for second offense. For vessels, unknowing violations are $50,000 plus clean-up costs up to $250,000. For vessels, knowing violations are $250,000 plus full clean-up costs. For facilities, fines up to $50 million plus full clean-up costs for knowing violations. Civil: $10,000 per day of violation, injunctions. Citizen suits: Any citizen may bring suit against any person, the U.S. government, or governmental agency for violations of this act.

Federal Water Project Recreation Act to 1965 (PL 89-72; 79 Stat 213; 16 USC 460[1]-12 to 460[1]-21)

- Policy to include recreation and fish and wildlife considerations in any water resources project. Discusses methods of funding.
- No penalties are directly associated with this act.

Fish and Wildlife Conservation Act of 1980 (FL 96-366; 16 USC 2901)

- Policy to promote fish and wildlife conservation. The act provides for funding of conservation programs.
- No penalties are directly associated with this act.

Fish and Wildlife Coordination Act (PL 85-624; 16 USC 661 *et seq*.)

- Policy to elevate the protection of wildlife resources to the status of water resource protection. Provides authority to Secretary of Interior to provide assistance to other agencies, state and local governments, and public and private organizations to develop, stock, rear, and protect all species of wildlife and their habitats. Provides specific protection for Bald and Golden Eagles and for endangered species of fish and wildlife.
- Penalties - Criminal: Fines up to $5000 and/or one year imprisonment. Fines and prison terms are doubled for second offense. Civil: Fines up to $5000 per offense, each violation is considered a second offense.

Forest and Rangeland Renewable Resources Planning Act of 1974 (16 USC 1601 *et seq*.)

- Policy for forest and rangeland management.
- No penalties are directly associated with this act.

Hazardous Materials Transportation Act (42 USC 1801 *et seq*. changed title to 49 USC 1471)

- Policy to restrict the transportation of hazardous materials.
- Penalties - Criminal: Fines up to $25,000 and/or five years imprisonment. Civil: Fines up to $50,000.

Historic Sites Act of 1935 (PL 74-292; 16 USC 461-467)

- Policy to preserve and protect historic and prehistoric properties of national significance. Established the National Historic Landmarks Program and set standards for inclusion of landmarks.
- No penalties are directly associated with this act.

Hunting, Fishing and Trapping on Military Lands [An update of the Military Construction Authorization Act]

- Policy requiring the Department of Defense to comply with fish and game laws of the state or territory in which it is located.
- No penalties are directly associated with this act.

Land and Water Conservation Fund Act of 1963 (PL 88-578; 78 Stat 897; 16 USC 460d, 460[1]4 to 460[1]-11)

- Policy to provide funding for the encouragement of development of land and water-based recreation and to ensure the stability of the recreation areas.
- No penalties are directly associated with this act.

Marine Mammal Protection Act of 1972 (PL 92-522; 16 USC 1361)

- Policy to prohibit the taking or importation of marine mammals and marine mammal products.
- Penalties are enforced under 16 USC 1375

Marine Protection, Research and Sanctuaries Act. (Ocean Dumping Act) as amended (PL 92-532; 33 USC 1401)

- Policy to protect and preserve marine habitats as designated by the Secretary of Commerce as sanctuaries. Restricts activities in sanctuaries.
- No penalties under this act; however, many acts may be punishable under RCRA at $25,000 per day of violation.

Migratory Bird Conservation Act (PL Chpt. 257; 45 Stat 1222; 16 USC 715 *et seq*.)

- Policy to set aside lands for the conservation of migratory birds. Established the Migratory Bird Conservation Commission which has the mandate to identify and obtain useful lands.
- No penalties are directly associated with this act.

Migratory Bird Treaty Act (PL 65-186; 16 USC 703 *et seq*.)

- Policy to prohibit the taking, possession, and trade of migratory birds, except as permitted by regulations.
- Penalties are enforced under 16 USC 707.

Migratory Game Fish Study Act of 1959 (PL 86-359; 73 Stat 642, as amended; 16 USC 760e)

- Policy to study migratory marine fish of interest to recreational fishing. Provides funding for said study.
- No penalties are directly associated with this act.

Migratory Marine Game Fish Act (PL 86-358; 73 Stat 643; 16 USC 760c-760g)

- Policy that provides funding for various studies of marine game fish.
- No penalties are directly associated with this act.

Mineral Leasing Act of 1920 (30 USC 181 *et seq*.)

- Lays out leasing and prospecting guidelines for coal, phosphate, sodium, potassium, oil, oilshale, gilsanite, and gas on federal lands.
- Penalties for fraudulent leasing: fines up to $500,000 and/or five years imprisonment.

Multiple-Use Sustained Yield Act of 1960 (16 USC 528-531)

- Policy to manage land in concert with the goals of a multiple-use program. Provides funding to support this act.
- No penalties are directly associated with this act.

National Environmental Policy Act (NEPA) of 1969 (as amended, PL 91-190; 42 USC 4321-4347)

- Policy to require federal agencies to consider the environmental impact of actions taken. Mandates a decision-making process to achieve the goal. This act is a procedural and declarative act. For any federal action that is not a Categorical Exclusion, an Environmental Assessment must be made in order to determine if a full Environmental Impact Statement (EIS) must be prepared. The EIS must follow specific guidelines outlined in 50 CFR 1500-1508. The act does not require the federal agency to chose the least environmentally destructive alternative; only that the agency considers the environmental impact and alternatives to the action.
- No penalties are directly associated with this act.

National Historic Preservation Act (NHPA) of 1966 (as amended. PL 89-665; 16 USC 470 *et seq*.)

- Policy to protect and preserve historic and prehistoric objects, structures, sites, and districts which are included in or are eligible for inclusion in the National Register. Establishes the National Register and the Advisory Council on Historic Preservation. This act defines a decision-making process to be followed when planning an action in the vicinity of a historic area. Requires the development of mitigation plans if historic areas will be affected. Provides funding opportunities to achieve the goals of this act.
- No penalties are directly associated with this act.

National Trails System Act of 1968 (16 USC 1241-1249)

- Policy to develop a system of national trails for recreational purposes.
- Penalties are provided for users abusing rules of trails. No penalties for developers or managers of trails.

Noise Control Act of 1972 (PL 92-574, 42 USC 4905)

- Policy giving the EPA the power to regulate and enforce noise level standards for commercial sources. Includes such sources as construction, transportation, motors, and engines. However, the FAA has final authority over aircraft noise.
- Penalties - Criminal: $25,000 per day of violation and/or up to one year imprisonment for the first offense. Fines and prison terms are doubled for second offense.

Outdoor Recreation on Federal Lands (16 USC 4601{1})

- Policy encouraging the development of outdoor recreation activities on federal lands.
- No penalties are directly associated with this act.

Resource Conservation and Recovery Act (RCRA) including the Solid Waste Disposal Act (42 USC 6901-6992, as amended)

- Policy and regulations to reduce and limit the amount of solid wastes entering landfills. Prohibits the open dumping of solid or hazardous wastes and encourages reuse and recycling of solid wastes. Provides funding for programs and projects intended to achieve the goal of this act.
- Penalties - Criminal: Fines up to $25.000 - $50,000 per day of violation and/or one to two years imprisonment. Knowing Endangerment fines up $250,000 and/or five years imprisonment. For organizations, fines up to 1 million dollars. Civil: Fines up to $25.000 per day of violation. Citizen Suits: A person may bring a civil suit against any person, the U.S. government, or agency which is in violation of this act, subject to minor restrictions.

Rivers and Harbors Act of 1899 (33 USC 401 *et seq*.)

- Policy to protect and maintain navigable waterways of rivers and harbors. Restricts certain activities in said areas. Penalties for wrongful deposit of refuse, injury to harbor improvements, and obstruction of navigable waters.
- Penalties - Criminal: Not less than $300 nor more than $2500 and/or not less than 30 days nor more than one year imprisonment.

Safe Drinking Water Act (as amended, 42 USC 300f *et seq*.)

- Policy to protect the potable water resources of the nation. Sets standards for drinking water quality and prohibits various activities in said water resources.
- Penalties - Criminal: Fines up to $50,000 and/or five years imprisonment. Civil: Fines up to $25,000 per day of violation. Citizen Suits: A person may bring suit against any person, U.S. government, or agency for violation of this act.

Salmon and Steelhead Conservation and Enhancement Act of 1980 (PL 96-561; 94 Stat 3275; 16 USC 3301 *et seq*.)

- Policy to enhance the renewable resource of salmon and steelhead fish and to provide the effective management thereof.
- No penalties are directly associated with this act.

Soil and Water Resources Conservation Act of 1977 (16 USC 2001-2009)

- This act requires the development of a national plan to prevent soil and water resources deterioration.
- No penalties are associated with this act.

Surface Resources Use Act of 1955 (30 USC 601, 603, 611 to 615)

- Policy regarding disposal of mineral and vegetative matter on public lands by the United States. Also deals with tide and claim issues. Expands on the Materials Act of 1947.
- No penalties are directly associated with this act.

Timber Sales on Military Lands [An update of the Military Construction Authorization Act] (10 USC 2665)

- Policy regarding the use of funds generated from timber sales on military lands.
- No penalties are directly associated with this act.

Toxic Substances Control Act (TSCA) (as amended, 15 USC 2601-2654)

- Policy to promote an understanding of effects of chemical substances and mixtures on health and the environment. Encourage research in this area, especially by manufacturers. Regulates those chemical substances and mixtures that pose an unreasonable risk of injury to health or the environment.
- Penalties - Criminal: Fines up to $25,000 per day of violation and/or one year imprisonment. Civil: Fines up to $25,000 per violation (each day of continued violation constitutes a separate violation). Citizen Suits: A person may bring a civil suit against any person, the U.S. government, or agency which is in violation of this act.

Water Resources Planning Act and Water Resource Councils Principles and Standards Act of 1965 (PL 89-80; 42 USC 1962 *et seq*.)

- Policy to encourage the conservation, development, and utilization of water and related land resources of the Nation.
- No penalties are directly associated with this act.

Watershed Protection and Flood Prevention Act (PL 92419; 68 Stat 666, as amended & 86 Stat 667; 16 USC 1001)

- Policy of the federal government to work with the states to prevent damages due to erosion/flood water and sediments, so as to improve the quality of the nation's land and water resources.
- No penalties are directly associated with this act.

Wild and Scenic Rivers Act of 1968 (16 USC 1271-1287)

- Policy to protect and preserve the nation's wild and scenic rivers. Sets up the National Wild and Scenic Rivers system and criteria for including rivers in the system. Prohibits licensing or federal funding for water resource projects on rivers in the system.
- No penalties are directly associated with this act.

Federal Regulations

Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (Title 36, Part 1191)

Codifies guideline requirements for buildings complying with the Americans with Disabilities Act (ADA). The guidelines are applicable to new design, construction, and alterations of all buildings required to adhere to the ADA. Guidelines are technical specifications regarding such aspects of minimum number of parking spaces, minimum hallway widths, work top levels, etc.

Curation of Federally-Owned and Administered Archaeological Collections (Title 36, CFR, Part 79)

This regulation sets forth standards, procedures and guidelines for federal agencies involved in collecting prehistoric and historic remains and artifacts recovered under the authority of the Antiquities Act, the Reservoir Salvage Act, Section 110 of the National Historic Preservation Act, or the Archaeological Resources Protection Act.

Department of the Interior Supplemental Regulations (for the Archaeological Resources Protection Act of 1979) (Title 43, CFR, Part 7.20) Reserved

Determination of Eligibility for Inclusion in the National Register of Historic Places (Title 36, CFR, part 63)

This regulation was developed to aid federal agencies determine the eligibility of property for inclusion in the National Register. The process is based on EO 11593 and regulations of the Advisory Council on Historic Preservation (36 CFR 800).

Endangered and Threatened Wildlife and Plants (Title 50, CFR, part 17)

This regulation was developed to implement the Endangered Species Act.

Environmental Protection and Enhancement (Title 32, CFR, Part 650)

This regulation defines policies, responsibilities, and procedures for the protection of environmental quality for the Department of the Army in peace time. Discusses water, air, solid waste, hazardous and toxic materials, noise, historic preservation, oil and hazardous substance spills, and environmental pollution prevention.

Interagency Cooperation-Endangered Species Act (Title 50, CFR, Part 402)

This regulation provides guidance for interagency cooperation in the implementation of the Endangered Species Act.

Migratory Bird Permits (Title 50, CFR, Part 21)

Establishes procedures for obtaining permits to take, possess, or transport any migratory birds or nests.

National Register of Historic Places (Title 36, CFR, Part 60)

This regulation defines the National Register of Historic Places. In addition, it sets forth procedures for inclusion of properties on the National Register and describes limitations and benefits of inclusion on the National Register.

Preservation of American Antiquities (Title 43, CFR, Part 3)

This regulation defines the jurisdiction over American antiquities located on various federal lands. Provides a process for permitting the examination, excavation, and gathering of objects of antiquity.

Protection of Archaeological Resources (Title 32, CFR, Part 229)

This regulation establishes standards and procedures for federal land managers dealing with archaeological resources on public or Indian lands in the United States.

Protection of Historic and Cultural Properties (Title 36, CFR, Part 800)

This regulation defines the "106 process" of the National Historic Preservation Act. Seeks to accommodate federal activities while maintaining the historic integrity of properties under the jurisdiction of federal agencies.

Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (Title 40, CFR, Parts 1500-1508)

Defines procedures for complying with the National Environmental Policy Act.

The Secretary of the Interior's Standards for Historic Preservation (Title 36, CFR, Part 68)

This regulation sets forth standards for preservation requirements of any proposed grant-in-aid project funded through the National Historic Preservation Fund.

Executive Orders (EO)

Environmental Effects Abroad of Major Federal Actions (EO 12114), 4 January 1979.

Essentially extends the requirements of the National Environmental Policy Act, Marine Protection Research and Sanctuaries Act, and the Deepwater Port Act to federal actions outside the United States.

Exotic Organisms (EO 11987) 24 May 1977.

Executive agencies shall restrict the use of federal funds, programs, or authority to export native organisms to foreign lands where such species do not occur naturally.

Federal Compliance with Pollution Control Standards (EO 12088) 13 October 1978.

Places responsibility on the heads of federal agencies for compliance with federal pollution control standards.

Floodplain Management (EO 11988) 24 May 1977, as amended.

Policy enacted to avoid long and short-term negative impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development.

Intergovernmental Review of Federal Programs (EO 12372) 16 July 1982.

Provides opportunity for state and local governments to consult on federal programs to which they would contribute funding or be affected by such programs.

Prevention, Control and Abatement of Environmental Pollution at Federal Facilities (EO 11752).

Intent to ensure that the federal government,in running its facilities, provides leadership in the protection and enhancement of the quality of water, air, and land resources.

Protection and Enhancement or Environmental Quality (EO 11991).

Amends EO 11514 so as to give the Council on Environmental Quality the power to promulgate procedural regulations regarding the preparation of environmental impact statements and to resolve conflicts between agencies regarding implementation of the National/Environmental Policy Act.

Protection and Enhancement of the Cultural Environment (EO 11593) 13 May 1971.

Protection of Wetlands (EO 11990) 24 May 1977.

Directs each agency to take action to minimize the destruction, loss, or degradation of wetlands.

Use of Off-Road Vehicles on Public Lands (EO 11644), as mended by EO 11989.

Sets forth provisions for allowing the heads of executive agencies to determine the allowable usage of off-road vehicles on federal land with the goal of protecting the areas from overuse.

Department of Defense Directives

Accounting for Production and Sale of Forest Products (DOD Directive 7310.5), 25 January 1988.

Updates policy, prescribes procedures, and assigns responsibilities for DOD reimbursement and for a state's entitlement to a share in net proceeds derived from forest products sold from military installations or facilities.

Archaeological and Historic Resources Management (DOD Directive 4710.1), 21 June 1984.

Directive provides policy, prescribes procedures, and assigns responsibilities for the management of archeological and historical resources located in and on waters and lands under DOD control.

Environmental Effects Abroad of Major Department of Defense Actions (DOD Directive 6050.7), 31 March 1979.

This directive provides policy for the decision-making process of considering environmental effects on actions by the DOD undertaken outside of the United States. Essentially, this directive extends the requirements of NEPA to these situations.

Environmental Effects in the United States of DOD Actions (DOD Directive 6050. I), 30 July 1979.

This directive provides policy that all DOD actions undertaken in the United States will be in compliance with the NEPA mandates.

Natural Resources Management Program (DOD Directive 4700.4), 24 January 1989.

This directive establishes policies and procedures for an integrated program of natural resources management. It stresses multiple-use strategies.

Army Regulations

Environmental Protection and Enhancement (AR 200-1), 23 May 1990.

Regulation deals with environmental protection and enhancement. This regulation covers the following topics: water, air, hazardous materials, solid and hazardous wastes, noise, oil and hazardous substances spills, environmental restoration, asbestos, radon, and other programs.

Environmental Effects of Army Actions (AR 200-2), 23 January 1989.

This regulation sets the policy for the Army to comply with NEPA. Implements the Council on Environmental Quality's regulations, EO 12114, DOD directives 6050.1 and 6050.7.

Historic Preservation (AR 420-40), 15 May 1984.

This regulation provides procedures and responsibilities for the treatment of historic and archeological properties, sites, objects, districts, etc. on Army land. Also provides instructions on locating and treating historic properties in accordance with NHPA. Establishes a method of creating a Historic Preservation Plan.

Museums and Historical Artifacts (AR 870-20), 9 February 1987.

This regulation intends to improve the quality and professionalism of Army museums and the preservation of items contained in Army museums.

Natural Resources — Land, Forest, and Wildlife Management (AR 200-3), 28 February 1995.

This regulation sets the policy and procedures for management of natural resources to ensure the support of the military mission and to ensure conservation, restoration, and appropriate use of renewable resources.


T Swager